

July 1938

TECHNOLOGY REVIEW

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Grace Moore
in Magnolia Gardens
.... *Chesterfield time is*
pleasure time everywhere

They Satisfy

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THE TECHNOLOGY REVIEW, July, 1938. Vol. XL, No. 9. Published monthly from November to July inclusive at 10 Ferry Street, Concord, N. H. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription \$3.50; Canadian and Foreign subscription \$4.00. Entered as second-class matter at the Post Office at Concord, N. H., under the Act of March 3, 1879.

THE TABULAR VIEW

WE commend the reading list, "Design in Modern Life" (page 409), compiled by Margaret Paige Hazen of the M.I.T. Library, as admirable collateral reading for the article, on page 405, by CHARLES D. MAGINNIS. Those who wish to know more about modern architecture and the International style are directed to four books in this reading list: "The New Architecture and the Bauhaus," by Walter Gropius; "The International Style: Architecture Since 1922," by H. R. Hitchcock, Jr., and Philip Johnson; "Towards a New Architecture," by Le Corbusier; and "Pioneers of the Modern Movement from William Morris to Walter Gropius," by Nikolaus Pevsner. ¶ Dr. Maginnis was born in Ireland, where he began his education at the famous Cusack's Academy in Dublin. From there he went to England and in 1883 won the Queen's Prize in mathematics at South Kensington. Two years later he came to America to settle in Boston and establish the architectural firm of Maginnis and Walsh, a name long associated with many notable ecclesiastical and college buildings. At the present time he is president of the American Institute of Architects. In 1924 he was awarded the Laetare Medal, and a year later his firm was honored by the award of the Gold Medal of the American Institute of Architects for its notable contributions to ecclesiastical architecture. ¶ His article is drawn from the address delivered by him at the graduation exercises of the Institute in June.

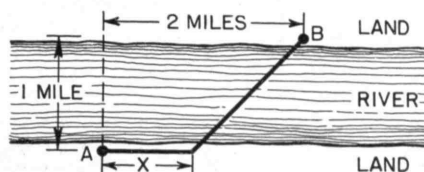
IN this issue two papers are presented in full and two in condensation from the symposium, "The Impact of Science on the Arts" (page 412), held at the Institute on Alumni Day. The committee which arranged the symposium included A. Lawrence Kocher, '13, chairman and presiding officer, Theodor C. Müller, '26, Kenneth Reid, '18, and Ralph T. Walker, '11. ¶ JOHN MILLS, '09, is director of publications of the Bell Telephone Laboratories, Inc., and a distinguished engineer and writer. His latest book, "A Fugue in Cycles and Bels," was published in 1935. ¶ WALDEMAR B. KAEMPFERT is science editor of the *New York Times*. ¶ MALCOLM COWLEY is literary editor of the *New Republic*. He has translated many books from the French, and his "Exile's Return," published in 1934, was read widely with approbation. ¶ FREDERICK J. KIESLER is director of the laboratory for design correlation at Columbia University and director of productions at the Juilliard School of Music. ¶ C.-E. A. WINSLOW, '98 (page 414), is Anna M. R. Lauder Professor of Public Health and associate fellow of Trumbull College, Yale University. ¶ HARRY J. CARLSON, '92 (page 415), has long been intimately associated with the Institute as a member of its Corporation and as an active Alumnus. In 1922-1923 he was president of the Alumni Association. ¶ JOHN E. BURCHARD, '23, is an editorial associate of *The Review*, was chairman of the Alumni Day Committee, and, as announced on page 410, is to be the director of the new Albert Farwell Bemis Foundation at the Institute.

No. 9

Just for Fun!

A CHALLENGE TO YOUR INGENUITY

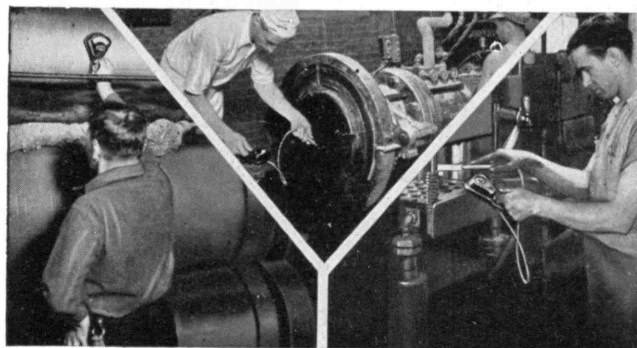
THE mathematical method which ordinarily would be used to solve the apparently simple problem given below leads to an absurd result in this specific case. Why?



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MAIL RETURNS

LETTERS AND PICTURES FROM REVIEW READERS

Good Germicides

FROM JOEL Y. LUND, '23, VICE-PRESIDENT
LAMBERT PHARMACAL COMPANY

After reading Dr. Dunn's article, entitled, "There Are Good Germicides," in the April issue of *The Review*, it occurs to me that some readers might be misled into believing that Dr. Dunn is criticizing the value and efficacy of the several well-known, nationally advertised oral antiseptics. In view of the fact that at one time Dr. Dunn participated in extensive practical tests which demonstrated the germicidal effectiveness of one of these antiseptics under actual conditions of use, I am sure that he did not intend his comments to be interpreted as such criticism.

I would appreciate very much your publishing this letter to clear up the possibility of any misunderstanding.
St. Louis, Mo.

The *Review* gladly publishes, to avoid any misunderstanding, Mr. Lund's comment on Dr. Dunn's article.

Avoiding Estivation — and Needle Hiss

FROM W. S. DRURY:

In *The Tabular View* on page 342 of the June issue, you quote a reader who has gotten into a state of estivation over the wearing away of phonograph records, and you speak yourself of putting up with needle hiss. Out here we have preserved our gift collection of fine records from the Carnegie Foundation by the simple device of using Kakti needles. These have the added advantage of playing many records without the need for changing or repointing, and surface noise is not bothersome. Being softer than record material, they do not harm it, provided there is no grit in the grooves. I suggest you recommend to your reader that he try some. A Red Top needle sharpener keeps them repointed as needed.

*Middlesex School
Concord, Mass.*

The Duck That Got Wet

FROM HOWARD CLEAVES:

The *Review* for May, page 294, contains further reference to "The Duck That Got Wet," the item including this: "His feathers, usually water-repellent because of the film of oil which covers them," and so on. If you are interested, I suggest you read an article in the *Condor* (1929), published by the Cooper Ornithological Club and doubtless

to be found in the library of the Museum of Comparative Zoology, Cambridge — an article by J. Eugene Law dealing with the subject of the oil gland in birds. This article establishes pretty conclusively that oil is entirely absent from the feathers of birds. The author believes the function of the oil gland to be that of lubricating the bird's bill.

Staten Island, N. Y.

Miracles of Railroad Engineering

FROM EARL H. LEAF:

Perhaps you would be interested in the following story which is based upon a letter I have just received from China and upon personal knowledge. I have experienced no less than 18 bombings myself while traveling on the Tientsin-Pukow railway line.

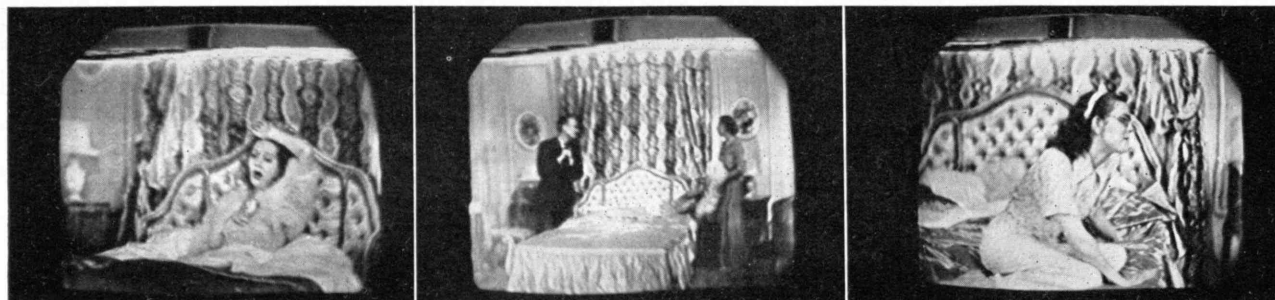
New York, N. Y.

M.I.T. Graduate Is China's Hero

The indomitable spirit and rare courage of China's railway officials and workers will some day be told in story and song, for no general or soldier on the front line faces more danger or heartbreak than these gallant men who have maintained railway communications open despite incessant bombings night and day. The railways immediately behind the Chinese lines are the constant targets for the Japanese bombers. Whole fleets of enemy bombing planes drop tons of explosives on those two thin strips of steel for weeks and months, yet somehow the Chinese keep the lines operating.

Of all the railways in China, the Tientsin-Pukow railway is the most bombed, with the Lunghai and the Canton-Hankow lines running a close second and third. Every official and worker on the Tientsin-Pukow line is a hero, and the hero of heroes — the man who has kept that railway operating under conditions which are almost beyond the ability of man to believe — is a young graduate of M.I.T., Shih Chih-jen, '24 [Chih Jen Shih], director of the engineering department of the Tientsin-Pukow Railway Administration.

Shih is not the kind of engineer who sits in a well-heated office far behind the lines, out of the reach of the birds of death. He lives and works directly inside the war zone. His line has been bombed more than 4,000 times during the past ten months, and Shih himself has been caught in no less than 300 bombings. He not only lives to tell the tale but also to waive aside his personal (*Concluded on page 396*)



SUSAN AND GOD & TELEVISION

Here are representative television images as photographed and rushed to *The Review* by Beverly Dudley, '35, during a recent telecast of a half-hour version of the play, "Susan and God." In introducing the play, telecast by R.C.A., John Golden, its producer, looked solemnly happy in being the first American producer to have a play presented by television with regular settings and Broadway cast.

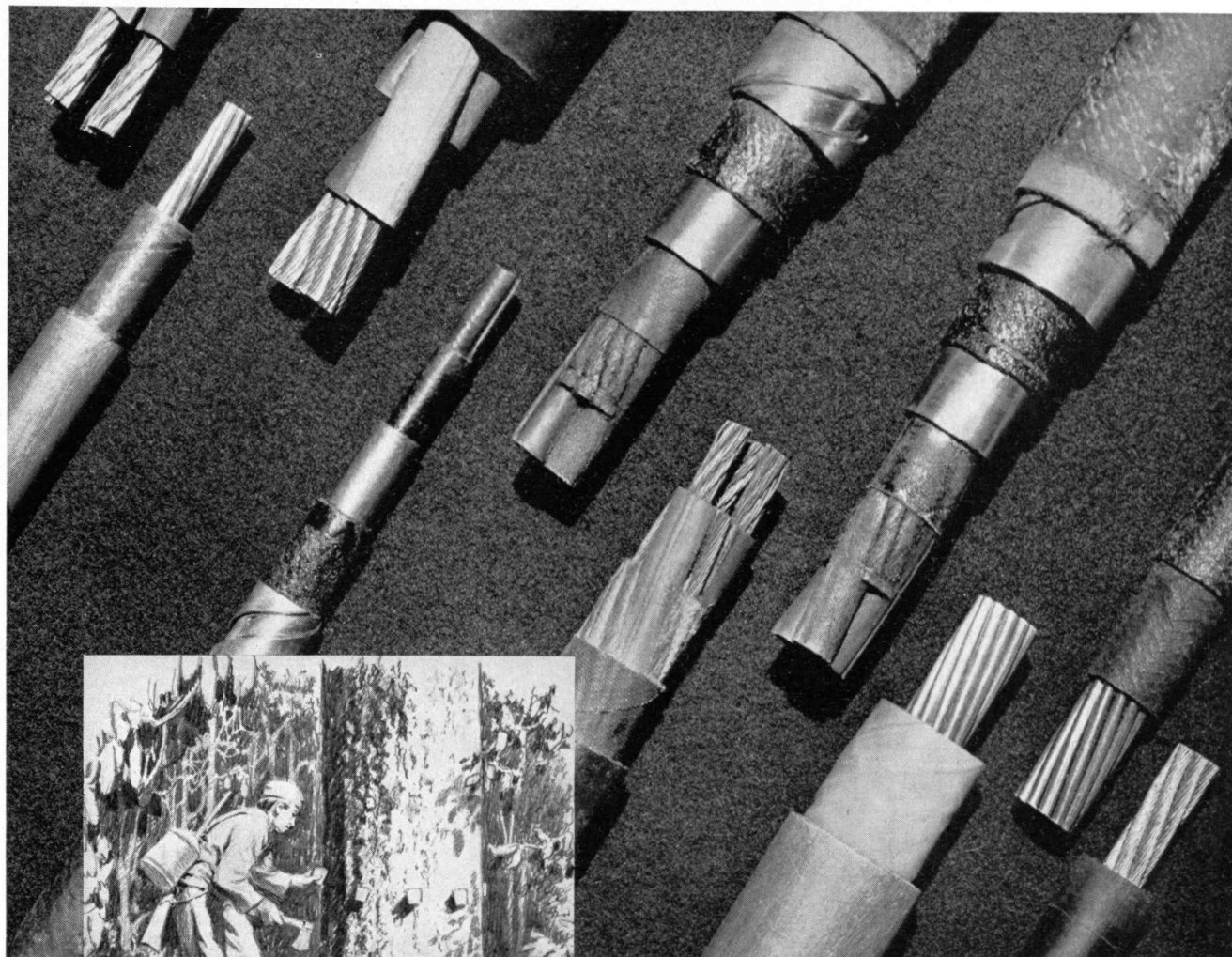
Reading in the usual manner, the pictures show (1) Gertrude Lawrence, as Susan, awakened, obviously, at the unseemly hour of 7:30 a.m.; (2) Paul McGrath and Gertrude Lawrence,

planning a vacation with their daughter; (3) Blossom (Nancy Coleman).

The receiver from which these images were photographed was constructed by Donald G. Fink, '33, in the research laboratory of *Electronics*, the magazine for which he and Dudley work. It is therefore a "homemade" receiver and not one of the few receivers closely held by R.C.A.

Readers will probably realize that defects are more apparent in these still pictures than they were in the moving images where attention was concentrated on the action and the dialogue.

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Donald R. Stevens, '11, Vice President

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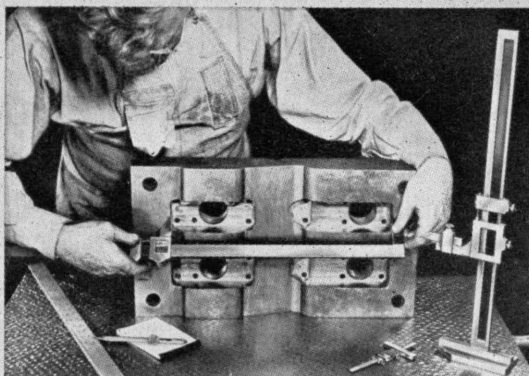
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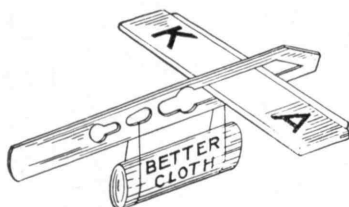
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EDWIN C. SMITH '91, President

MAIL RETURNS

(Concluded from page 394)

experiences as something of little importance and to glow with pride and appreciation when he talks about his fellow workers.

If any of the three Central China trunklines had been put out of commission by Japanese bombs for more than a few hours or if the operations on any sections of these railways had gone wrong in early March, the sending of troops and supplies to South Shantung would have been impossible, and history might have told a different story. The slightest mishap might have enabled the Japanese to accomplish the occupation of Sūchow and might have prevented the Chinese armies from giving the Japanese the greatest defeat in their military history — at Taierhchwang on April 7.

Largely through Shih's efforts, most of the rolling stock of the railway was removed before the Japanese could seize it. Nearly 300 locomotives were saved before the Japanese secured possession of the northern section of the line. His line lost only five engines since last July, two of which were under repair at that time in Pucheng, and three were blocked off north of Tanghsien as a result of the destruction of bridges by the Japanese. About 95 per cent of the rolling stock, including the famous *Blue Express*, had been withdrawn from the northern and southern extremities of the line, and the British-built train ferry for the cross-Yangtze section between Pukow and Nanking had been removed to safety.

“Our men risk their lives every day,” he told his interviewer, while they were crouching behind a Chinese grave during a bombing operation. “Only yesterday two of my men were wounded by aerial bombs when they were loading the captured airplanes and tanks here for display in Hankow. The casualties in my staff so far are around 130. Since the adoption of defense measures, the Japanese planes have been prevented from flying low and machine-gunning us. So there have been fewer casualties the past several months.”

Emergency premises have been constructed at every station along the line. Even the fences at the stations have been removed so the train crews and passengers can scurry for cover all the quicker. Every precaution has been taken, but there is no real cover when the Japanese bombers start dropping their 500-pound missiles on the railway lines. The roar of the Japanese planes overhead is the signal for the engineer to halt the train immediately while the crew and the passengers take to the fields and disguise themselves as cabbages or what not.

On clear days when Japanese aerial operations are under way, it is frequently necessary to run from the train into the fields from a dozen to 20 times. This becomes terribly annoying and nerve-racking under certain conditions, particularly if the fields are soaked with rain and many inches deep with mud. Tracks, ties, and other equipment are concealed every few miles, and section crews are stationed along the entire lengths of the railways. They are out on the track making the repairs almost before the bombing planes are out of sight.

Although the Tientsin-Pukow railway has been struck hundreds of times, the line has never been out of operation longer than four hours! Did Shih learn such miracles of railroad engineering at M.I.T.?

The Next Major Step in Printing

FROM DR. OTTO I. BLOOM:

Thank you for your courtesy in sending me a copy of the December issue of *The Review* where some reference was made to a photographic type-composing machine, the joint invention of myself and the technical director of the academy.

Since our invention has been made public, I have seen or heard of no new development in the field of photographic type composition, although I am sure that many people are still working on the “problem.” (Pardon the quotes around the word *problem*. Naturally, I feel that no problem exists now, not at least with our machine in the field.) The next major step in the commercial printing art will, I believe, be in color printing, whereby such printing will be speeded, made more economical, and more clean registration secured. The academy has sponsored a great deal of research on the subject, and as a matter of fact, our technical director has just obtained two United States patents covering a major process in commercial typesetting for multicolor printing.

American Academy of Graphic Arts
New York, N. Y.

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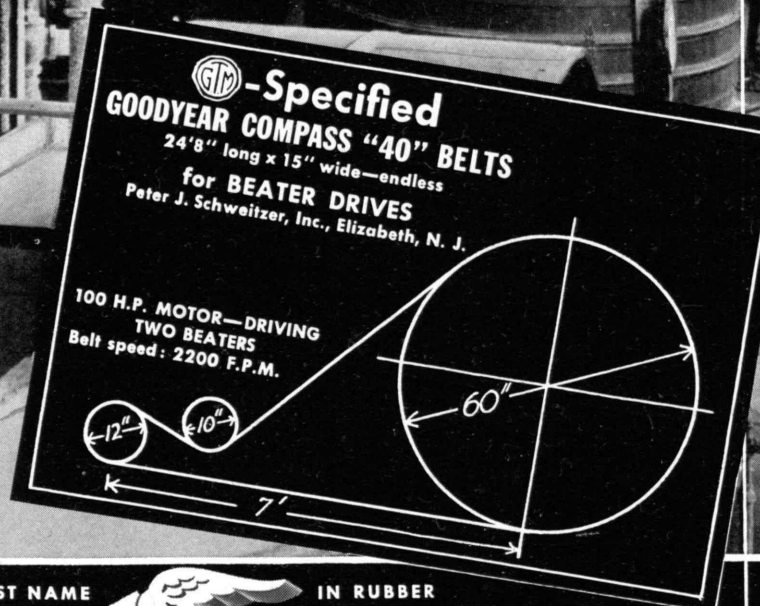
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EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 40, NO. 9

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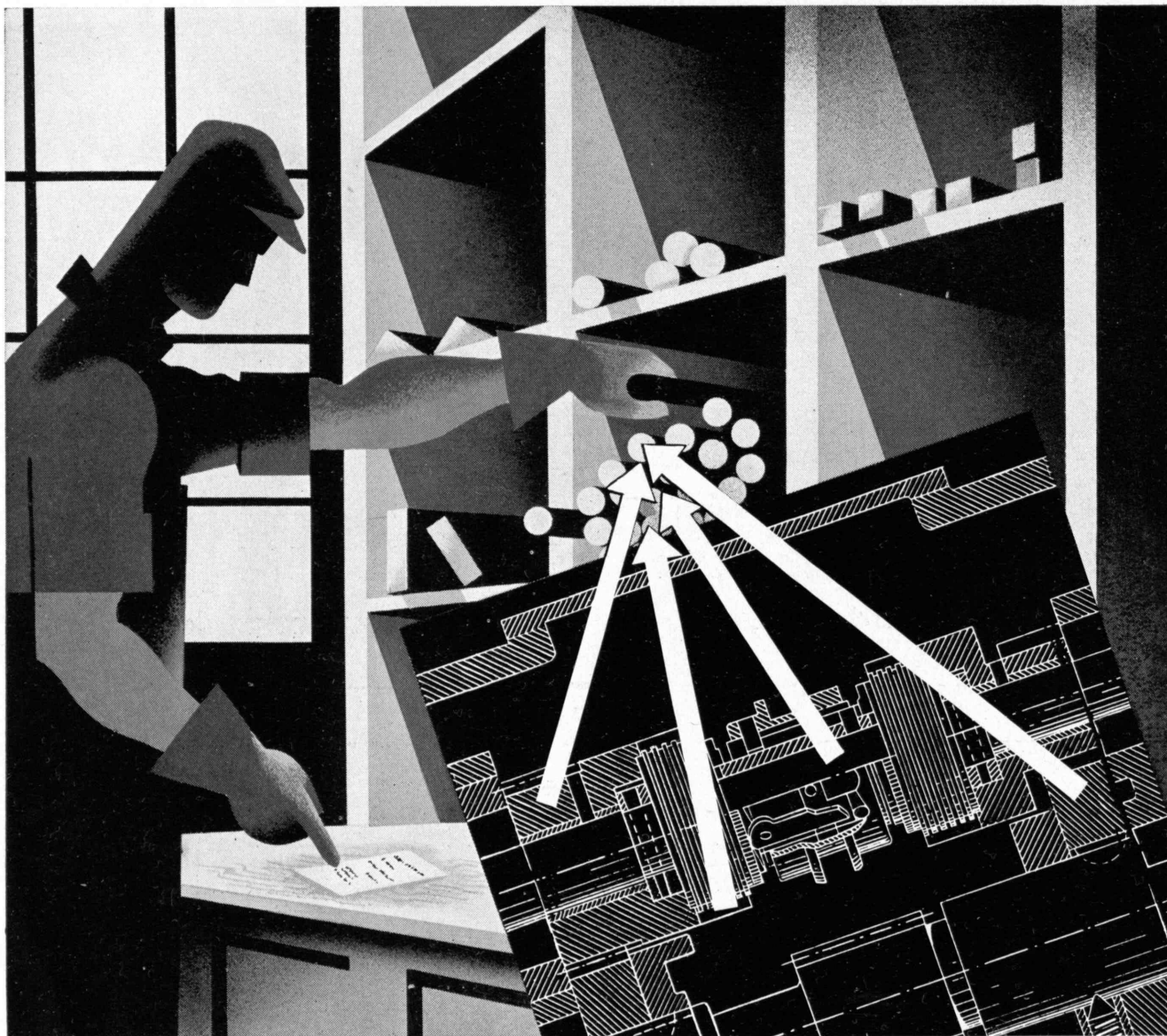
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THE TECHNOLOGY REVIEW

Vol. 40, No. 9



July, 1938

The Trend of Affairs

T.V.A. China

VAST supplies of fine clay within easy access, plus the great resources of electric power available in the Tennessee Valley, have led to glowing predictions of a new industrial future through the Tennessee Valley Authority. Great deposits of a white, pure clay which when finished can compare favorably with any of the English clays are made the basis for optimistic prognostications of an industry engaged in the manufacture of fine china in the valley. Development of electric furnaces for firing the product and thus making use of electricity produced by the Valley development is seen as supplying the implementation for these good prospects.

Study of the ceramic possibilities of the Tennessee Valley clays has been pushed by the ceramics laboratory at Norris Dam, under the direction of R. E. Gould. The North Carolina clay deposits in the vicinity of Spruce Pine have been known for many decades but have been extensively worked only recently. The clay assays as the purest of its kind known. One of the principal objectives of the T.V.A. work in ceramics has been to develop ways of firing the pottery electrically, and to this end, wares have already been made in a unique electric furnace at the dam.

The entire development is of course one of great interest to American whiteware manufacturers. If successful, it will lead to the mass production of a hard porcelain ware similar to that made in Europe and differing from the hotel china and

earthenware now made in America in that the first, or biscuit, firing is carried out at a very low temperature, with the final firing at a very high temperature, reversing the present American practice. The quality and cost of the hard porcelain that would be thus produced, as compared with European ware, cannot yet be predicted, according to Professor Frederick H. Norton, '18, of Technology's ceramics laboratories. American producers are not as yet convinced that the ware can be made in America cheaply enough to compete with foreign ware of the same type.

Hazards are presented by the fact that it is necessary to mine between five and ten tons of the North Carolina deposits to get one ton of clay, which makes the initial cost rather high. The question of firing by means of electric furnaces likewise is not yet finally answered, despite the progress that has been made at Norris Dam. Electric firing can be done readily on a small scale and has been done in somewhat limited production in Europe. Yet, even though the cost of power may be

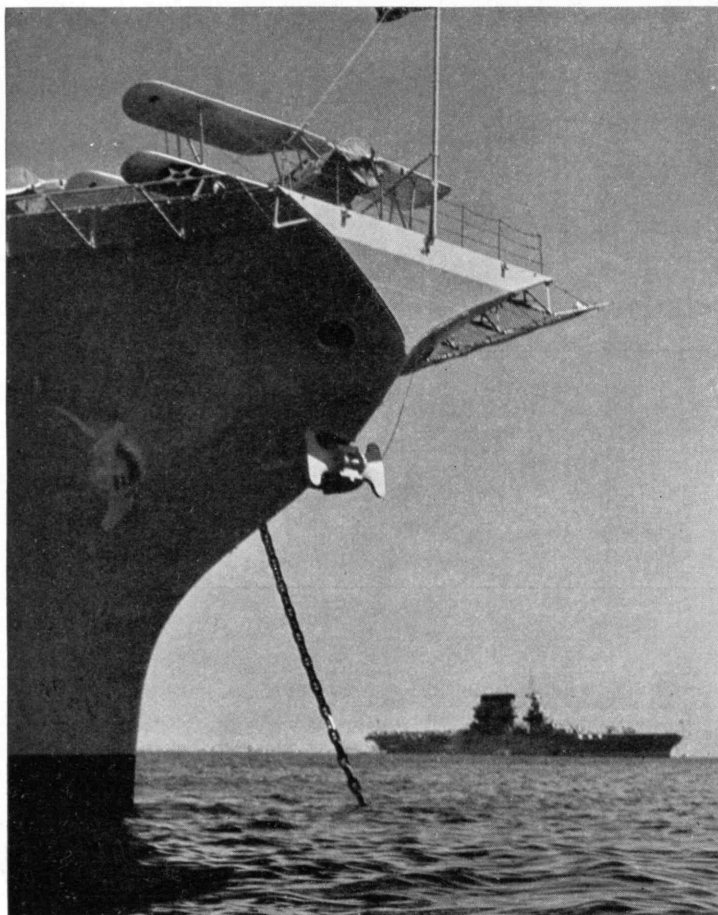
very low, as in the Tennessee Valley, electricity may not be satisfactory for large production because of the difficulty in getting a uniform temperature in large cross sections, as would be necessary if the wares are to be made on a mass-production basis.



Eisenstaedt-Pix

Batting Averages

FOR more than a third of a century, the bulk of the interest from the fortune which Alfred Bernhard Nobel found in explosives and the Baku oil fields has been going, with studied



The graceful bow of the aircraft carrier Saratoga composes deftly with the view of a distant sister carrier

Doolittle

disregard of nationality, to those individuals (and institutions) whose accomplishments in five specified fields have been outstanding. Since every award recognizes not only a great man but also a great achievement, these prizes should form a record, since 1901, of the major advances in physics, chemistry, physiology and medicine, literature, and the cause of international peace. Measures of cultural achievement are so rare that we cannot afford to look critically upon their accuracy; under the circumstances it seems allowable to examine the record in the manner of the baseball statistician and to see just how the various nations stand in their contributions to three of the sciences and, shall we say, two of the arts.

According to Harrison Hale of the University of Arkansas, 160 Nobel prizes have been awarded in the period 1901 to 1937. Germany has received 37 of them; England, 23.5; France, 20.5. The United States is fourth, with 18 awards. One award, by the way (ironically, a peace prize), is without a country, for it was given in 1904 to the Institute of International Law.

As significant as the totals are the trends which show that whereas this country had received 6.9 per cent of the awards given up to 1927, its share of the total in 1937 was 11.25 per cent, an increase of 63 per cent. No major nation can show an improvement of parallel magnitude. England's standing has improved over 26 per cent in the past decade, but its percentage of

awards had been steadily diminishing until about 1927. If the distribution of Nobel prizes is really an indication of scientific activity, then France has been steadily losing ground as a leader in this field, while Germany as yet shows no appreciable decline.

The temptation to correlate these meager statistics, whether they will or no, with one's political and social views is almost invincible. At no time in history have science and the arts struggled in more widely different environments simultaneously than they do today. In some lands, these arts and sciences are still free, still international; in other equally great nations, the traditional intellectual liberties of the creator have been completely subordinated to political ideologies, and the attempt has been made to direct the course of scientific advance in an unprecedented degree. It would be amazing if such profound differences in surroundings would not soon be reflected in equally profound differences in scientific and artistic output. The findings of impartial bodies such as the Nobel institutes seem fertile ground in which to hunt for clues to these changes. Like the baseball fans, let's sit back and watch the averages.

Hare Shock

IN 1933 the Lake Alexander area in Morrison County, Minn. had a population of 478 snowshoe hares per square mile. By the spring of 1936 the density had decreased to 164 per square mile. At present the number of animals in this region is too low to be measured

accurately. This is one instance — one of the many — where wild animals fare far worse in Mother Nature's shiftless hands than in man's, for hunting and trapping are rarely capable of causing a decline of such intensity. This tremendous death rate is the result of one of the epidemics which periodically visit certain wild animals, in this case at about ten-year intervals.

So widespread is the infection that Robert G. Green of the University of Minnesota and Carl L. Larson of the Bureau of Biological Survey, who have been studying this epidemic, report that in several parts of the state half of the hares trapped alive die by the fifth day of captivity and that practically all are dead by the 20th day. None of the usual infectious diseases of hares, such as tularemia, seems to be seriously involved, nor do the animals display any outward signs of illness. Specimens observed in the field, for instance, would be contentedly hopping about, eating their usual foods, only to be seized suddenly by convulsions, sink into a coma, and die in less than an hour. Captured rodents showed a greater mortality, however, and caused the observation that the change in environment which occurred on capture frequently seemed enough of a "shock" to start the fatal seizures. Ordinarily, the term in its medical sense is applied not so much to an emotional disturbance as to a serious condition whose central feature is a very low blood pressure resulting from a large decrease in the volume of blood and plasma

being circulated. The condition is generally thought of as following only severe injury and its accompanying hemorrhage, but many other causes are now known, including bacterial waste products and insulin. An excess of the latter substance can lower blood pressure to shock levels, the blood-glucose level also dropping.

Curiously, Green and Larson report that while the normal hare has an average liver-glycogen content of 5.5 per cent, an animal on the verge of shock has one of 0.14 per cent, a figure which drops even lower before death. A hare with his carbohydrate reserve at such a low value stands close to the edge of eternity, for even slight exertion or excitement can completely deplete what glycogen is left and cause the blood sugar to drop below its normal range. Coma follows, then death. Injections of glucose help for a while but finally fail to bring relief.

Tramp Mines

MOBILITY is not generally considered a feature of the typical mine, which may be most inconveniently located but at least stays put. Yet Jerome Strauss, Vice-President of the Vanadium Corporation of America, reports that some 200,000 pounds of vanadium a year are coming not from Peru — or some other appropriately far-off region — but from the boilers and smokestacks of certain oil-burning steamships.

Traces of this metal are found in almost all petroleums, but crudes from Venezuela and Mexico contain enough so that, when they are burned, the nonvolatile vanadium oxide remains behind to form from five to 25 per cent of the flue deposits. For such concentrations, the price of the metal is high enough to merit reclaiming, a practice now being followed in this country, England, and Japan.

This is not the first time valuable products have been recovered from flue gas. Electrical precipitation of fine dusts from air and gas is now widely used, is coming into use even for air conditioning as improved, less expensive precipitators become available.

Three Books

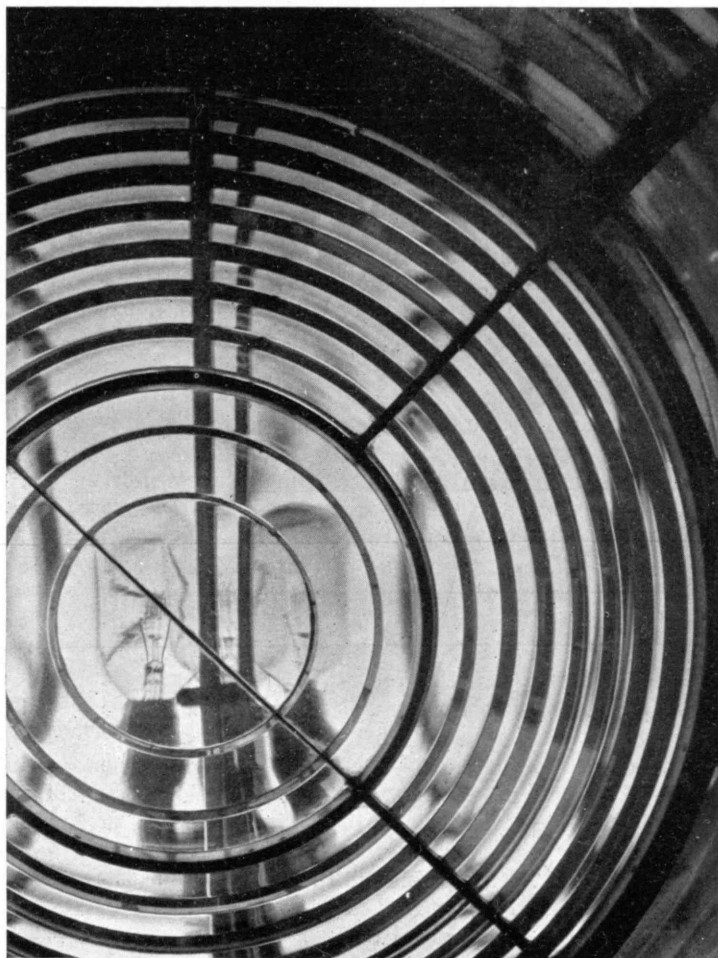
NOT very long ago, a reviewer concluded his remarks on De Kruif's "The Fight for Life" by saying: "When the fight is won, how are we going to use life to render it significant, harmonious, and filled with a high tranquillity? Here science is silent." If this statement is taken as applying to science in the narrowest meaning — the laboratory or constructional science which is concerned merely with investigations of parts and production of new combinations — it makes partial sense. If applied to science in the larger aspect, it is utter nonsense. Science has a great deal to say about the securing of significance, harmony, tranquillity. Though much of what science has to say must be expressed in pragmatically utilitarian terms such

as those of medical advance, for instance, still more remains to be said and is being said in the abstract, universal terminology of philosophical and ethical values.

Science will not of itself render life significant or fill it with tranquillity; to do so is the business, primarily, of humanism in the largest sense. But what science has to say of values will serve to ameliorate life as it is comprehensible and useful to the humanistic undertaking. In this necessity rests the imperative need for the successful popularization of science — not that popularization which is content to write sensationally about ten-yard sparks and stupendous magnitudes but that popularization which labors to make the method, the rigor, and the rationality of science both available to the humanistic disciplines and understandable to the lay mind, which must be appeased if the humanistic or social techniques are to be of any use in bettering life.

The task here suggested — of establishing a transformation of ideas of value from, say, a coördinate system of relativistic physics to the coördinate system of everyday ethics — has not yet been done. However, advance in this direction is being made, as three recent books evidence. These are "The Evolution of Physics,"¹ by Dr. Einstein and his collaborator, Dr.

¹ New York: Simon and Schuster, 1938. 319 pages, \$2.50.



LENS

Here is the source of Nevasink Light, one of the most powerful in the world

Leopold Infeld; "The Intelligent Individual and Society,"² by Dr. P. W. Bridgman, Hollis professor of mathematics and natural philosophy at Harvard; and "Essays in Science and Engineering,"³ selected by Professors Franz Montgomery and Luther N. Becklund of the University of Minnesota from a wide range of authors and publications, including *Technology's* President and this magazine. With different intensities, the three are examples of what science has to say about tranquillity and significance in life, examples, then, of the second kind of popularization, successfully done. The abstractly philosophical importance of science is of major weight in the first; the social or ethical implications of science in the second; the social or ethical significance of some of the many concrete aspects of science in the third.

Drs. Einstein and Infeld carry the reader through the story of physics from the two concepts of matter and energy, through the two realities of matter and field, to speculation on the possibility of there being but one concept, the field, and of constructing a physics thereon. The decline of the mechanical view and the development of relativity serve as motifs linking together many seemingly isolated experiments and facts. Analogy with detective fiction is used by the authors at the start of their story and applies throughout, for the unfolding of the tale has the quality of collecting and connecting of clues. Lesser analogies and concrete illustrative material aid the task of popularization. Although the explanation of relativity theory is likely to be rather heavy going for the uninstructed, the reader who really wants to know can learn from the book. Stylistically, the account has much charm, derived largely from conversational tone and a sort of urbane detachment which contrasts neatly with the intense importance of the material. Insistence upon the philosophical quality of the subject matter and upon the statement that it is a creation of man, not a system imposed externally upon man, gives the book its ethical importance. Not only the authors' conviction of an inner harmony in the universe but their objective attitude toward that universe must impress the reflective reader.

From the universe to the individual is a very short step, in terms of the ethical and social applications of physics, as appears readily from Professor Bridgman's volume. Here is discussion as directly personal and individual in intent as the first was cosmic and ageless. Essentially, Professor Bridgman attacks from a scientific point of view many of the problems which, as H. V. Routh argues, the great writers of the past century, notably Browning and Tennyson, were unable to master because their instruments, particularly romantic mysticism, were ineffectual. Finding that the desire to lead "an intelligently well ordered life" is defeated because he is not able to answer any question about it "with even an approach to that clearness and completeness which I demand with regard to my scientific activities," Professor Bridgman in this essay undertakes analysis of social concepts with an eye to their revision. The highly personal quality of the book

is its best guarantee of value; it is personal as an essay must be. The operational analysis of physics is applied to language, to logic, to mathematics, in the effort to revise leading ideas of social relations. Much attention is given to the dangers of verbalism, the inertia clinging about words and slogans, the tendency of men to guide their lives by phrases to which they attribute meaning and significance which really do not exist. The development of critical attitude earlier in the young, and the greater exploitation of resources of learning — even to the mechanization of libraries — are urged as ways toward bettering life for the individual and hence for society. Lacking the virtuosity of the Einstein volume, this essay is stylistically attractive because of its directness and the homely, forthright quality of its language.

To the general reader, the first group of essays in the Montgomery-Becklund collection is likely to be of greatest interest, for it includes discussions of a number of the applications of science which directly affect his daily life. The rest of the collection is possibly of more importance from our immediate point of view, however. It consists of examples of definition, of classification, of analysis, as carried out scientifically, and therefore serves to show in how many places the implements of science are being made familiar to the general reader. From this familiarity must develop ability to make use of science in the way Dr. Bridgman suggests.

Water West to East

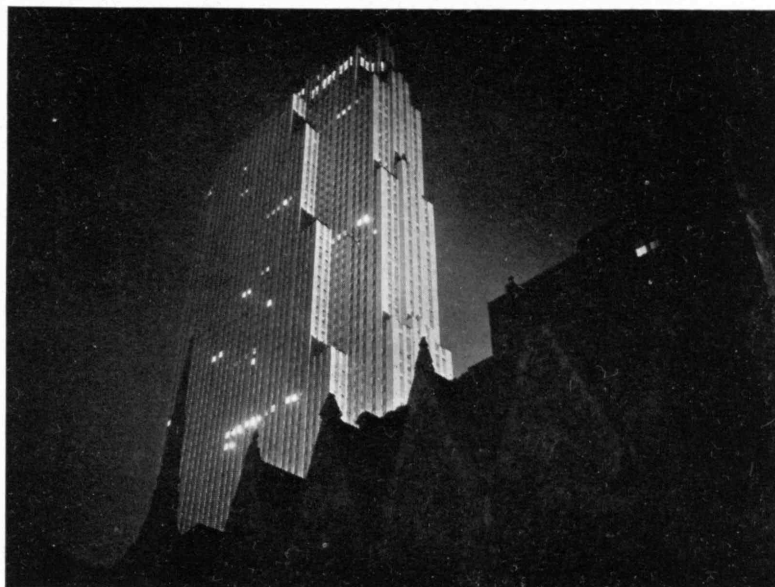
WHATEVER their ultimate economic significance may be, the United States government cannot be charged with lack of imagination in the colossal scale of its engineering projects and the boldness of its attack. The Tennessee Valley Authority development, Grand Coulee, and the fantastic Passamaquoddy tidal power project in the Bay of Fundy are examples. Now the government proposes the Colorado-Big Thompson irrigation and power development system. This project will literally reverse the flow of the upper reaches of the Colorado River, diverting part of the vast water resources of the western watershed of the continental divide under the mountain range to irrigate the fertile lands of Colorado stretching away from the eastern slope of the divide.

Undismayed by a rocky barrier that rises to an average altitude of 11,000 feet, the government will drive a 13-mile tunnel through the mountains in Rocky Mountain National Park for a supply of water which, in addition to irrigation of approximately 615,000 acres of fertile land, is expected eventually to develop 360,000,000 kilowatt-hours of firm power and 200,000,000 kilowatt-hours of secondary energy in five big power plants. However, only one power plant is contemplated for the present.

Although Congress has appropriated \$900,000 to begin construction, a technicality prevents a start on the project until further enabling legislation is passed. The estimated cost of the initial program, including the tunnel, 13 miles long and nine feet in diameter, will be approximately \$31,836,000, and the ultimate cost when all features of the project are completed is expected to be about \$44,000,000.

² New York: Macmillan, 1938. 305 pages, \$2.50.

³ New York: Farrar, 1938. Revised edition, 523 pages, \$2.00.



The R.C.A. Building, Rockefeller Center, New York City, towering over the Church of St. Nicholas and providing an eloquent contrast between the old and the new in architecture

Paul J. Woolf

Is Architecture an Art?

Or Is It Becoming a By-Product of Engineering?

BY CHARLES D. MAGINNIS

ARCHITECTURE has always held an equality in the company of the fine arts. In the capacity of architecture to minister to human need was perceived no vulgar disqualification but only another excellence, another nobility. By this beneficent function the roots of architecture reached deep into the life of the generations and won acceptance for it as the unerring witness of the past. In the service of that utility it was always the especial gift of architecture to find other satisfactions for the spirit through a gracious rendering of beauty. And it was by the enterprise of this imagination through the free play of racial temperament that the world has been enriched with so diversified and romantic a heritage.

If we would intelligently comprehend the present predicament of architecture, we must recall that, historically, art was largely the product of geographical isolations. In the symbolism of the atlas, Europe was a mosaic of definitive civilizations, each of which shaped its architecture and the other elements of its culture with relative independence of its immediate neighbor. An interesting testimony of this is the fact that the art of the church, which developed so marvelous a variety of religious emotion, was affected by national genius to the degree that even Rome itself rarely had contemporary influence.

Into that static world, science introduced the steamboat and the telegraph, and life began beating to a new tempo. The quick exchange of thought and the fluid movement of population soon made an end of our national privacies, and there leaped out at us the revelation of all the wonderful things that had lain in dusty seclusion

through the centuries. History lost its perspective, and the artistic ingratiations of the past were now thrust into our everyday consciousness. The architect skilled himself to speak in many tongues, and our streets were filled with echoes of strange societies. So accustomed did we become to this anomaly that we rarely questioned why architecture was content to be an art of reminiscence. In our more thoughtful moments, it is true, we had an amused wonder that so confident a civilization could commit itself with complete unreserve to the inspiration of antiquity. Occasionally we were not a little apprehensive that posterity might think meanly of our inarticulateness. On the whole, however, we were satisfied to believe that the creation of a new architectural system, if it were to be significant, could not be merely an intellectual process. It could be neither invented nor imposed. We must await patiently, therefore, the challenging principle which would release us from the gracious tyranny of history.

Dramatic modification was first implicit in the advent of steel, from whose thin, nervous, and amazingly capable genius sprang the skyscraper, the dynamic verticality of which immediately caught the world's imagination. As a responsible civic unit the limits of the skyscraper's validity are still a subject of controversy. In the tumultuous island of Manhattan, where it has contributed so magnificent a drama, it is particularly notable that its orderly relation to a rational city organism is yet to be established. Even modest communities, however, are not to be denied this proud symbol of congestion. Technically the skyscraper is one of the most characteristic accomplishments of the



At Williamsburg, Va., © F. S. Lincoln, '22

"It is hardly likely we will soon be persuaded . . . out of our domestic romanticism. The humanity with which we are acquainted is too tenacious of its lares and penates to settle down comfortably in the arid and antiseptic sitting rooms which are prescribed by the mechanistic domesticities"

American spirit. Early experiments in its design had sought more or less timid compromise with tradition, but an esthetic was finally found for it which expressed with complete felicity the presence of the strange anatomy behind the walls. In this achievement America made its first distinctive contribution to the architecture of the world. Here was an incipient modernism of our own, emerging out of indigenous conditions in a just relationship of architecture and engineering.

There are those who believe that we were on the way to becoming a temperate people when the advance was interrupted by the violent impact of Prohibition. Our architectural evolution appears to have encountered a like shock. We had paused in our progression at the completion of the skyscraper, not yet ready to admit the claims of other problems to so scientific an approach. We find ourselves now confronted by a philosophy of startling realism which, after a tender germination in America, is returning to us with passionate emphasis from Europe. This contemplates an architecture of complete independence of tradition, which, deriving out of the properties of modern materials, shall be limited to a stark functional rationality. Its protagonists differ much as to its implications, but the most revolutionary of them has given us the disturbing dictum that the architect of tradition is damned and that the engineer is saved by virtue of the infallibility of his mathematics. The mind of the engineer is held to be incapable of distraction; that of the architect is held to be cluttered

with historical images. The one whose business it is does not produce architecture; the other unconsciously achieves it. This daring thesis, which takes so slight account of the element of imagination, is frankly based on a mechanistic order of society. To its author we are indebted for the now familiar aphorism that a home is a machine for living in. In this almost defiant statement of the austerities which inhere in the new order, there is suggested a doubt whether the statement is the acknowledgment of society's inability to minister to sentiment or the contemptuous flouting of sentiment. Our puzzlement extends as we remark the fortuity with which the philosophy is adjusted to the contradictory genius of the media. These, for instance, obviously make for an embarrassing thinness of wall; so a principle is now proclaimed that architecture is not the walls but the modeling of interior space, though it is clearly the walls of history and not the space which have so intelligently survived. The media do not lend themselves to monumental expressions; so the monument is dismissed as an archaic fashion. The logic of the media does not allow of the play of personality; so personality now is an invalidated idea, and man is merely a mathematical unit of society. In these accommodations we note with what a completeness the implications of steel and concrete are designed to engage our habits and our dearest hopes.

Nowhere is this new philosophy more impressive than in the facility with which it disposes of the last 40 centuries. We had been taught to look respectfully upon that accomplishment. Throughout that spacious history man fashioned the memorials of his intellectual and spiritual life in an architecture of poignant eloquence. What he built was particularly the proof of his high imaginings, for in building only could he find the worthy and enduring symbols. It is proposed to us that this precipitated loveliness shall henceforth lie a dead weight upon the earth. In a persuasion that the only world which matters began the day before yesterday, we are now to turn our back upon the past as a dumb and encumbering archaeology. It was Victor Hugo who declared that the printed word would make an end of architectural idealism, but we perceive today even in unlikely places how incorrigible still is this emotional impulse.

Those of us who are confident that the past is not so easily dismissed are nonetheless content that it promises to rest more lightly on our generation. We have lived perhaps longer than we need have under the full burden of it. So accustomed had we become to the veneration of antiquity that we were moved even by our own illusions of it. In a discriminating evaluation, however, much is perceived that is still pertinent not as invitation to apish reproduction, of which we have had enough, but as stimulus to new inspiration. Here preeminently is presented the claim of that classic system of order, refinement, and sound proportion which, independently of rhetorical superficialities, will always be valid to an architecture of nobility.

Till now America has been comparatively inhospitable to the new realism. Time was when Europe thought us too materialistic for the sentimentalities of art. Now Europe is resentful that we should seem to reject an

artistic philosophy so tolerant of our published inadequacies. Europe came to earlier enterprise in the new theories of design from the need for exploring economical processes of building after the impoverishment of the World War. Yet one might have looked there for more resistance to their encroachment upon domestic and religious architecture. If these interests in this country are as yet almost completely unaffected, it may be said at once that the ecclesiastical essays of France and Germany in the new manner are not beguiling enough to distress us greatly over our backwardness. And it is hardly likely we will soon be persuaded out of our domestic romanticism. The humanity with which we are acquainted is too tenacious of its lares and penates to settle down comfortably in the arid and antiseptic sitting rooms which are prescribed by the mechanistic domesticities. There is bound to be a sense of outrage at the disqualification of those mellow souvenirs which contribute to the intimate sentiment of our homes. In New England, the impact with the Colonial tradition is filled with implication of tragedy. The Stuarts and Copleys, incapable of so cruel a condescension, would be forced to retire from daily intimacy to the protected gravity of institutions. And the exchange of our cherished highboys and winged chairs and other proud comfortablenesses for a furniture with an anatomy of steel tubing is a violation which offends more than the pride of ancestry. So rude an assault on the domestic tradition, however, has larger than artistic implications. We may well be resentful at so inadequate a provision for the dignities of life as is represented in a bleak concept that would reduce home to the terms of a mere shelter. We are reasonably interested that in this enterprise of mechanization man himself be left out of the process.

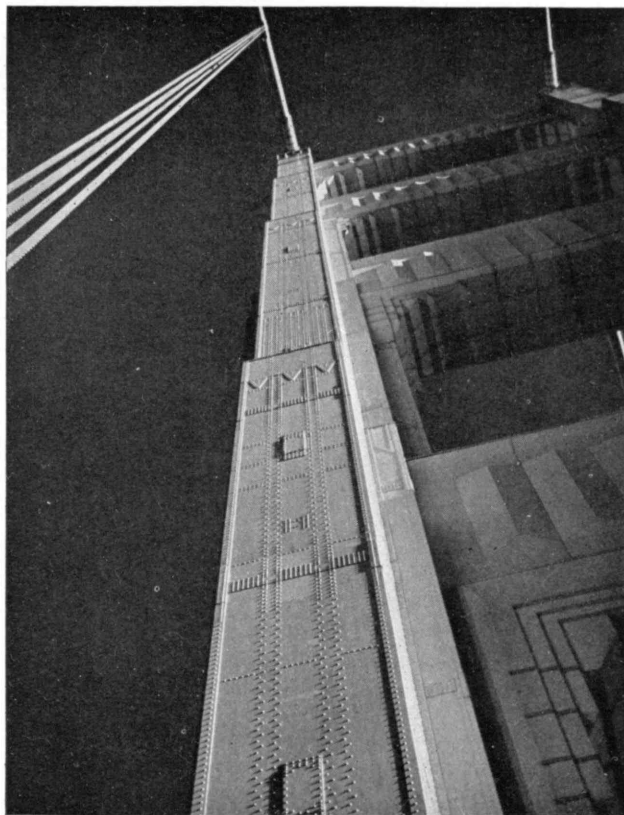
Possibly it was in the extremity of such an apprehension that the poet, Lord Dunsany, was driven to prose when he said: "The first thing that the earlier ages did was to set up walls and roofs as shelters against the rain, and the second was to soften what was ruggedest in the world in which men had to dwell and to give the dreams and fancies of men dominion over the harsher and cruder things. You could see in those days that man held an important place on the earth. But now you would rather say that steel was the more important. Steel is shaped by man no doubt but not to his dreams; man has only served steel as a slave. And so we have machinery pushing forward to a foremost place, and the dreams and fancies of man are far behind. What is utility but an end which can be seen by the short-sighted? All the great ends lie further."

The measure of satisfaction which we are promised in the new architecture is coldly limited to a perception of the austerity with which it indicates its purpose. Form must not only derive from function but end there. No abstract or rhetorical felicity is admitted with which to veil the structural nudity. In this immediacy of expression, the hazard of ugliness is clearly not contemplated. Indeed, neither the word nor the idea is encountered in the new thesis, though ugliness may not be dismissed without dismissing beauty too. The functionalism of the past — for functionalism is no new idea — was a bigger principle which included the obligation to

express the dignity of the interest behind the walls, a process that provided for a polite acknowledgment of the communal sensibilities. In that graciousness even Technology itself may be entitled to its Classic countenance. And beauty in architecture we know was never a mere millinery but an emotionalizing of form by an act of imagination. The Gothic cathedral and the Greek temple are supreme instances of a triumphant, almost abstract, beauty which arose out of perfect deference to structural rationality. We can only assume that the modern world is indifferent to this nobility, preferring less moving symbols of its consequence.

As our civilization becomes more and more mechanized, man must finally confront problems of arresting import. Conceding all the social beneficence which is claimed for machinery in the saving of human drudgery and the promise of a leisure which would give men the opportunity to create, we cannot forget that we have relinquished craftsmanship to factories and have no need to make things by hand. We are thus being driven toward a liberty for which we are doubtfully equipped, and the leisure state, as has been said, may well destroy us forever.

If architecture is still an art and not a by-product of engineering, beauty cannot be a dispensable interest. Is beauty conceivably beyond the scope of the new materials? We observe that steel, in its individual enterprise and under the sole government of mathematics, can



Golden Gate Bridge, F. M. Mann, Jr.

"We observe that steel, in its individual enterprise and under the sole government of mathematics, can arrive at the ugliness of the railroad bridge. Subordinated to architectural principles, steel is capable of the nervous grace of . . . the spans across . . . the great reaches" of our own bays and rivers

arrive at the ugliness of the railroad bridge. Subordinated to architectural principles, steel is capable of the nervous grace of the Eiffel Tower, of the spans across the Seine and over the great reaches of the Hudson, and we are familiar too with the faculty of concrete in the impressive realistic sweeps of Boulder Dam. But steel has the singular disability in that, with all its sinewy capabilities, it cannot make for interesting ruins, and ruins have their eloquent significance. If modern architecture is to depend upon it importantly for the rendering of our civilization, a reasonably remote posterity can have no visual knowledge of us. Perhaps this matters less since architecture has lost something of its documentary infallibility. The advocates of the new architecture, I believe, are not concerned about its survival. If it serve its day, it is enough. Perhaps its admirable competency to satisfy the realistic ends of the generation may appear too limited an admission, but the resources are not in evidence which have promise in them for loftier challenge. So far its largest gift is that stimulating influence by which it has brought to all design a thoughtful independence and a cleansing simplicity. In its protesting thesis one seeks for the exaggerated meanings and finds that in time the new architecture may be satisfied with more temperate use of its biting austerities. It would be enough, indeed, if these austerities should come to signify that architecture in its readjustment with the past had merely cast aside the trappings of tradition for a space to sit contemplatively in its skin.

By its nature, the new order in architecture is geographically universal and is already known as the International style. Mere principles of mathematics acting on similar media must obviously come to the same conclusion at Boston or at Peiping. One can only speculate on the degree to which national individuality will permanently submit to a uniformity which makes no acknowledgment of race, of clime, or of geography. That nationality is still a persistent and passionate principle, the morning paper makes us only too uncomfortably aware. We may wonder, also, whether the thin, artistic content of this technological system is adequate to the entertainment of two hemispheres. More confidently we can believe, however, that if, in the invalidation of history, it were possible as well to obliterate all the evidences of it which now furnish the rich background of our present world, man left to his mechanisms would probably soon go mad.

After all, may we not too confidently hold that articulated masonry, which has so capably served the world till now, is banished with the rest of the archaeologies? Need we forget that our inherited beauty was wrought in bricks and stone, of which the world has still aplenty? It is not as if they were inevitably bound up with those painful and laborious processes of the days when men reared mountains to ideas. At least print will serve for pyramids. But the swift and immediate world which is now in the making can ill afford to lose that gift of emotional utterance which in an enduring literature of stone has left us the glory of Durham and Chartres. The architecture which impends makes little claim to eloquence, and its meager geometry will presently appear a poor exchange for the old masonry.

Before consigning history to the wastebasket, we need more assurance of modern competency. It is to be remembered that the past has frequently been invalidated. To 18th Century England, Shakespeare was a medieval barbarian. With a kindred significance, Gothic architecture was given four contemptuous lines in the early issues of the "Encyclopaedia Britannica." It has since had more flattering appraisal — Rodin, the French sculptor, in the studies of his maturity accounting it the loftiest reach of human genius.

No doubt eclecticism has given us a surfeit of old sentiments, and we did not wait for the moderns to reveal the humors of it. But if we now rejoice over a developing independence, the choice need not henceforth lie between an architecture of excessive imagery and one that has none at all. In Scandinavia we have impressive instance of an attitude which is making its own terms with modernity, while conserving the flavor of its picturesque traditions, a modernism of charm, of tolerance, of independence.

In our own country the classic literalism of the Lincoln Memorial may have seemed too gratuitous an acknowledgment of our architectural impoverishment, but if the Great Emancipator belongs to the ages, the reproach should rest lightly on such a day as ours that could find no tongue for its veneration other than a universal speech which once was Greek. Our institutions of learning in their statelier speech give no less a sanction to Classic pertinences. Let the Memorial be archaeology if you will; I for one will not withhold a tribute to the genius of the architect, no longer living, whose taste and scholarship made possible in that recreation of mature loveliness an intellectual ideal of architecture that will long continue to confound our mechanisms. It is said that had the Greeks been acquainted with steel, they would have left their marbles in the quarries. Perhaps, but in that likelihood we could not well have known the Greeks. Steel could neither create nor project the vision of the Acropolis. Even less could it have evoked from the medieval imagination the rhythms of the Gothic cathedral.

We are not forgetful, in this wistfulness, that architecture is a living art whose concern is to manifest with intimacy the genius of its day. This must ever be the measure of its worthiness. In that enterprise we look for testimony of our ideals no less than of our realistic habit. We have found a world vernacular adequate to the topical challenges of modern realism. Are we then to relinquish the higher enterprise which the vernacular is too poor to interpret? A few centuries ago science took over the universe and relegated religion to the level of an archaic emotion. Now, when signs are not wanting of a reconciliation of that momentous conflict, men are capable of the folly of reconstructing civilizations without the spiritualities. The vividness of these experiments will bring to us only more dramatically the significance of their ultimate frustration. Out of the bitterness of that experience man may well derive a new wisdom and a new authority. With restored faith in old sanctities he should bring to the building a concept of order and justice more worthy of that spiritual destiny of which beauty in art is after all but the symbol of his eternal striving.

Design in Modern Life

A Reading List Inspired by the Conference, "The Influence of Science on the Arts," at M.I.T. on June 6

COMPILED BY MARGARET PAIGE HAZEN

"To the students of design today we must look for the true expression of our modern age." — H. A. Fowler in the preface to his *"Modern Creative Design and Its Application."*

AMERICAN UNION OF DECORATIVE ARTISTS AND CRAFTSMEN. *Modern American design.* Edited by R. L. Leonard and C. A. Glassgold. Ives Washburn, Inc. (New York), 1933.

BAUER, CATHERINE. *Modern housing.* Houghton Mifflin (Boston), 1934.

Includes an account of the growth of urban congestion and the increase of land values in the 19th Century, a sketch of housing reform movements up to the World War, the story of the housing enterprises undertaken in various European countries since 1918, and an analysis of present and prospective housing standards.

BEHRENDT, W. C. *Modern building: its nature, problems and forms.* Harcourt, Brace (New York), 1937.

"Among the books recently published on modern architecture, this one gives unquestionably the most compact historical and philosophical summary." — W. A. Agard in *Books* (New York *Herald Tribune*).

BEMIS, A. F., '93. *The evolving house.* Volume III, *Rational design.* Technology Press (Cambridge), 1936.

Deals with prefabrication and architectural design, efforts toward rational housing, mass production, standardization of house parts, and the cubical modular method of construction.

BEST MAUGARD, ADOLFO. *A method for creative design.* Knopf (New York), 1926.

"In its tightly compressed paragraphs not only most artists, but all those who are interested in theories of art and of art's place in human life and development, will find suggestion and stimulation." — *New York Times*.

BIRREN, FABER. *Color dimensions: creating new principles of color harmony and a practical equation in color definition.* Crimson Press (Chicago), 1934.

"I have charted the 'gap' by creating a Color Equation that not only identifies the tone but gives the actual visual composition of it! In effect, I have used the principle of a continuous gauge rather than a sectional rule and have thereby brought every conceivable tone of the spectrum under subjection." — *The Author*.

BLOSSFELDT, KARL. *Art forms in nature: examples from the plant world photographed direct from nature.* One hundred and twenty plates. E. Weyhe (New York), 1929.

CHENEY, S. W., and MARTHA CHENEY. *Art and the machine: an account of industrial design in 20th century America.* McGraw-Hill (New York), 1937.

The authors show the emergence of modern style, from its beginnings in the countless machine-made articles of daily life: trains, automobiles, stoves, steamships, refrigerators, glassware, furniture, and so on, in which utility and functional interest have merged with the esthetic appearance of things.

Circle: international survey of constructive art. Edited by J. L. Martin, Ben Nicholson, and N. Gabo. Faber and Faber (London), 1937.

Contemporary painters, sculptors, architects, and writers combine to give a complete cross section of their ideals and practice.

DE LA VALETTE, JOHN (editor). *The conquest of ugliness: a collection of contemporary views on the place of art in industry.* Methuen (London), 1935.

DEWEY, JOHN. *Art as experience.* Minton, Balch (New York), 1934.

An attempt "to restore continuity between the refined and intensified forms of experience that are works of art and the everyday events, doings, and sufferings that are universally recognized to constitute experience."

FOWLER, H. A. *Modern creative design and its application.* George Wahr (Ann Arbor, Mich.), 1933.

"Seeks to consider the difficulties faced by the student of design in his efforts to do creative work, particularly the difficulties of the alert student who is sincerely desirous of mastering underlying principles in order to originate his own design." — *Foreword*.

GROPIUS, WALTER. *The new architecture and the Bauhaus.* Translated from the German by P. M. Shand. Faber and Faber (London), 1935.

Describes the aims and work of the design center founded by the author in 1919. The work of this group has revolutionized artistic expression in Germany so that traditional styles have been generally abandoned in favor of forms determined by modern material and scientific discovery.

HITCHCOCK, H. R., JR., and PHILIP JOHNSON. *The international style: architecture since 1922.* Norton (New York), 1932.

The authors contend that there is already a new and distinct style of architecture, which they call International. Their book has illustrations and plans of buildings in many countries.

KAUFFER, E. MCKNIGHT. *The art of the poster.* Palmer (London), 1924.

Remains an outstanding work on French, German, Russian, American, and English posters.

KEPPEL, F. P., and R. L. DUFFUS. *The arts in American life.* McGraw-Hill (New York), 1933.

Covers commercial design, advertising, theater, and movies, as well as architecture, painting, sculpture, and music. The viewpoint is that of the effect of the various arts on the social life of America. Period covered: 1920-1930.

KIESLER, FREDERICK. *Contemporary art applied to the store and its display.* Brentano's (New York), 1930.

Presents numerous examples — mostly European — of shop fronts, store windows, and interior display designs in modernistic style.

(Concluded on page 424)

Toward Better Shelter

The Albert Farwell Bemis Foundation Is Established at M.I.T., and John E. Burchard, '23, Appointed Director

NOT so many years ago the study of housing was esoteric, reserved for a few foresighted men. Today housing, caught up in the maelstrom of events, has become almost a political catchword. Despite the many experts who now adorn this field, despite the rapid rise of housing toward the status of a profession, the agencies which are making serious and objective studies of housing are nonetheless few, and the gaps between the fields they cover are appallingly large.

Studies destined to bridge some of these gaps will be increased at the Institute, beginning with the next academic year, when there will be established the Albert Farwell Bemis Foundation, dedicated to the "search for, and dissemination of, knowledge pertaining to adequate, economical, and more abundant shelter."

Albert Farwell Bemis, '93, was a distinguished industrialist and a loyal and generous Alumnus of Technology. His first interest in housing was stimulated many years ago by his travels in Europe, where he came into contact with a recognized housing problem long before it had been regarded as important in this country. Foreseeing even then that this European problem would soon also be an American problem, he set out on a quiet program of research in the economics and construction methods of housing, which he hoped would result in a characteristically American solution. This activity engaged more and more of his time, attention, and resources up to his untimely death two years ago. In the course of this work, he had become an acknowledged student in the housing field and the author of an important three-volume work on the history, the economics, and the rationalization of shelter, entitled, "The Evolving House." After many years of these pioneering studies he became convinced that just as technical advances had lowered costs in many other divisions of human activity, so too research and the resulting greater knowledge would inevitably lead to lower costs in housing and hence to better housing for more people.

The trustees of the Albert Farwell Bemis Charity Trust — Messrs. Farwell G., Alan C., '30, and Judson Bemis, sons of Mr. Bemis — have had the vision to perpetuate the significance of their father's work through this new foundation which is at once a con-

tinuation of his long interest and a memorial to his steady affection for, and confidence in, Technology. Establishment of the foundation has followed only after an exhaustive investigation of the existing agencies for research in housing. This study has included conferences with the directors of research or other executive officers of nearly every large eastern corporation having a major interest in the building industry, with directors of governmental bureaus and the representatives of government housing agencies, with individual experts and associations. These conferences have resulted in a surprising unanimity of opinion as to the greatest research needs of the industry. They have also elicited assurances of effective coöperation between these agencies and the foundation.

The cost of foundation activities will be borne by income from a capital gift made to the Institute by the trustees of the Albert Farwell Bemis Charity Trust. It will constitute a separate division of the Institute, which will however coöperate closely with all departments, especially the School of Architecture, the Department of Civil and Sanitary Engineering, and the Division of Industrial Coöperation. Major policies will be determined by the President of the Institute with the counsel of an advisory committee, the members of which will be men who are prominent in the architectural and building professions. Executive, detailed

control will be vested in a director. Aside from its investigations in the designated field, the foundation will add to the Institute's teaching facilities through the coöperation of its personnel, which will include secretarial and research workers in addition to the director.

First director of the new foundation, recently appointed, will be John Ely Burchard, '23, well-known housing authority and also well-known to Alumni for his many recent activities in behalf of the Alumni Association, particularly as chairman of the Alumni Day Committee (see pages 411 ff). Mr. Burchard, who will resign his position as vice-president of Bemis Industries, Inc., to take the new post in September, was associated intimately with Mr. Bemis from 1925 until the death of the latter. During this period as Mr. Bemis' first lieutenant in housing (Concluded on page 442)



The late Albert Farwell Bemis, '93

Garo



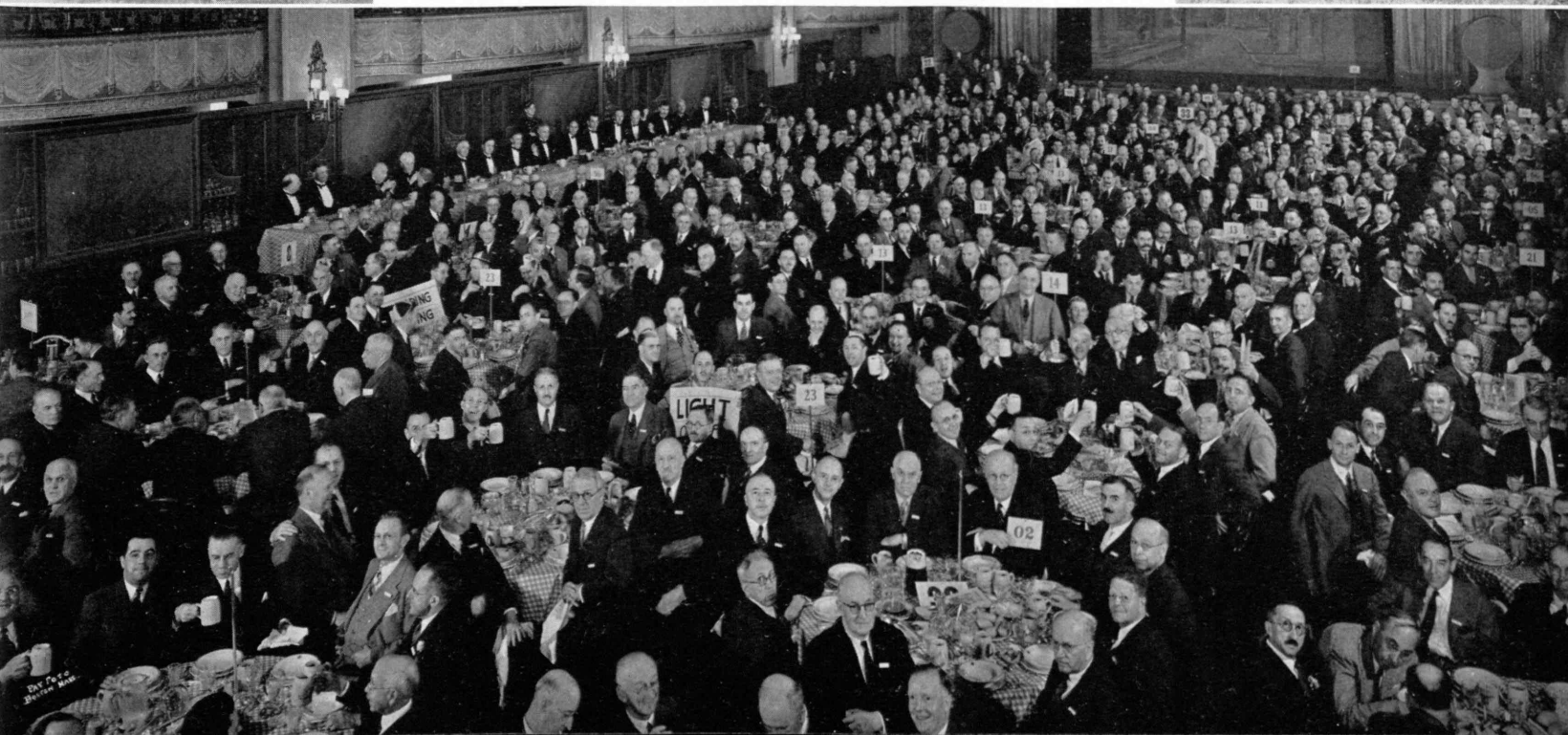
Photographs by Frederick B. Wolf, '28, M.I.T. Photo Service, and Fay Foto

ALUMNI DAY, 1938

THE adjacent pictures and the following pages (those carrying the design on the steins given to Alumni at the dinner) attempt to capture and preserve some of the high spots that made Alumni Day on June 6 one of the brightest and most satisfying festivals ever celebrated at Technology. Into one day were packed ceremonies to mark the end of one Technology era (farewell to Rogers, page 414) and to celebrate the beginning of a new and greater (the dedication of the new Rogers, page 415), together with a symposium and exhibitions (pages 412, 413, 416 ff.) appropriate to such a day — the whole ending with a brilliant, jubilant dinner (see below) which, now a tradition, departed from tradition enough to smile with the past and to lock arms with the future in marking the loyalty of Technology Alumni.

The pictures in the top row show (1) Alumni arriving from Rogers for the luncheon; (2) the Class Day exercises at which William G. Besler, '88, of the 50-year Class, Laurence C. Hart, '13, of the 25-year Class, and Vernon G. Lippitt, '38, of the Senior Class spoke with humor and eloquence; and (3) the dedication ceremonies of the new Rogers Building (page 415).

Two other events were notable: the dedication of the Davis R. Dewey Memorial Library and the dedication of the Theodore E. Schwarz Memorial Map Room, both important additions to the Institute library system. The Dewey Library honors Professor Davis R. Dewey who, on his retirement in 1933, had completed 40 years as head of the Department of Economics and Statistics. Dr. Harlow Shapley gave the dedicatory address, and Dr. Dewey responded. The map room has been attractively decorated and equipped by Gertrude Schwarz Hinckley, '10, in memory of her father. Charles E. Locke, '96, gave the dedicatory address, introduced by Dr. Compton, as was Dr. Shapley.



THE IMPACT OF SCIENCE ON

Engineering and Art

BY JOHN MILLS

IMAGINE a large, circular table and, at its center, a man fully clothed and endowed with some elementary knowledge of mechanics. The surface of the table is ideally frictionless; it offers no footing, and the man can neither walk nor crawl across it. Faced with the necessity of getting off, he remembers Newton's third law of motion, that action and reaction are equal and opposite; that the mutual actions of two bodies are always equal and oppositely directed. So he removes one of his shoes and hurls it from him as violently as he can. The shoe travels rapidly along the polished table — that is action; and the man, much more slowly, slides in the opposite direction — there's the reaction. And it carries him over the edge of the table.

That actions occur in pairs, equal and opposite, is accepted as a law of our physical universe and finds no exceptions in chemistry or electricity. Upon its basis aviators fly and guns recoil. Does this law hold true in the realm of mind and spirit? I would postulate that it does. In the demagogic turmoil of our world we may say that the leader is the man of the hour, an inevitable product of his time; or we may say that the leader acts on his followers but they react on him. When the nexus is less close and the spirit of the leader reaches posthumously through the printed page, then it may seem that action and reaction cannot be equal and opposite, that there is no point at which the reaction can be applied. Perhaps we arrive at too instinctive a conclusion if we think that is the case, for the dead leader leaves behind him followers, a cult or a school which bears his name. He becomes a myth and a symbol. He is incorporated. His creed becomes the charter or constitution of successive groups of followers, although some may follow from afar. And these followers are at any time the owners and defenders of the corporation, the interpreters

and modifiers of its constitution. This intangible entity which has thus evolved is subject to the universal law of action and reaction. Whether we look at Christianity or Marxism, at the written constitution of our own country or the unwritten one of Britain, we may always expect to equate action to reaction.

In the impact of imponderables — of civilization and barbarism, of science and religion, or of science and art — there is, I postulate again, no action unaccompanied by an equal reaction. As illustration, note a line from Lewis Mumford's latest book: "The human failure of metropolitan civilization," he says, "has awakened compensatory reactions." So closely paired are action and reaction in the physical world that sometimes the action is to be recognized or measured only by the reaction. In our muscular experiences we are usually conscious of action, of exerting a force, only insofar as we experience the reaction. Recall the relative sensations of throwing a bowling ball, a baseball, and a ping-pong ball and one arrives at the necessary conclusion that reaction is the muscular evidence of action. Probably no creative artist would contend that his spiritual actions are unaccompanied by equal reactions. When in the crowd the woman touched the hem of his coat, it was not without justification that Jesus said: "I perceive that virtue is gone out of me."

So far I progressed in what you might call an engineering attack on the problem presented by the impact of science on art; then I was stopped — to be honest, I was stumped — by my inability to recognize any reaction of art upon science. I could cite reactions upon science of religion, of machine industry, and of social philosophies. Indicative of our time are relativity, the principle of indeterminacy, and the totalitarian concept of the field. But of any reaction upon science, in the sense in which I was interpreting those words, I was unable to detect a trace. And so I turned to reconsider the pregnant words in which is phrased our subject: the impact of science on art. We have here three short Latin words, all of long life and two of continuous evolution; words which we bandy back and forth, each assuming that the other knows what we mean. So before we can proceed, we need to agree for the moment on our definitions. It helps but little to qualify our terms by calling art either fine or useful and by calling science either pure or applied. For myself, I cannot separate the livability of a house from the emotional and esthetic satisfaction which it affords its occupant. The very useful newspaper, meaningful prose presented by the graphic arts, is not to be divided into facts and format. The pure science of (Continued on page 427)

Science and Society

BY WALDEMAR B. KAEMPFERT

Précis. Genius though rare is not unique. Countless examples of simultaneous inventions. Technical heritage essential to progress. Science, research, and democracy rose together. Science results in mass production, mass consumption. Mass production implies standardization. Standardization may imply regimentation. The more standardization, the less liberty. This poses a dilemma to the democratic state, a dilemma which does not confront the totalitarian state. In the latter there can be some science but no revolutionary thinking. Despite its problem, democracy is the only protection against the abuse of research, science, and the machine by selfish men. Science is international, the best proof that man is able to suppress the tiger and the ape within him.

Technology and Letters

BY MALCOLM COWLEY

SOME years ago I translated an essay by Paul Valéry, the French poet and philosopher, in which he discussed the effect of modern technology on letters and men of letters and reached a remarkably pessimistic conclusion. "I am not sure," he said, "that literature, in the present sense of the word, is destined to have a future. I do not know whether the extraordinary transformations that we are beginning to observe — the changing conditions of human life, the changing relations of minds one to another — will permit a further development of books; nor do I know whether the medium of language will continue to be employed for the purpose of stimulating or influencing the mind.

"Will the literary medium perhaps be replaced by other modes of affecting men's sensibility and intelligence? Already it is possible to wonder whether a vast literature of a purely auditive and oral nature will not, in a very few years, replace the written literature with which we are familiar. I am, of course, referring to the radiophonic method of transmission, which continues to spread over the world. Moreover, the development of new photographic processes and of methods for transmitting the immediate vision of things to a distance is also calculated to modify profoundly those human relations that used to be based on writing.

"We can imagine," M. Valéry continued, "that the descriptive passages of literary works might be replaced by a direct plastic representation" (by photographs, that is, or by stereoscopic images on a screen) "whereas the emotive passages of the same works might be replaced by direct action of a more or less musical nature, and this by means of what might be called the permanent availability of music, resulting from the new processes by which it is registered or transmitted. In a word, nothing prevents us from thinking that literature may shortly become an art as obsolete and as far removed from life as, let us say, the heraldic art, or geomancy, or falconry."

Valéry went on to suggest that even if literature survived, certain literary forms might completely disappear. Psychological novels might give way to psychological treatises and case histories. Sociological novels might give way to direct sociological studies, that is, there would be no more books like "Babbitt" in the future, but there might be books like "Middletown" and "Middletown in Transition," dealing with the same material in terms of science rather than fiction. As for poetry and philosophy, they have a greater chance for life, but merely because they are difficult to write and read and thus give exercise to our intellectual muscles. Just as the development of labor-saving ma-

chinery, so Valéry said, "has permitted us to create, or rather has forced us to create, pure employments for our muscles and to develop them more — and more harmoniously — by play than they were formerly developed by hard labor," so the development of new intellectual tools may transform the art of letters into a sport like tennis or golf.

There are many illuminating passages in Valéry's essay. Undoubtedly he is correct in saying that some forms of literature will become obsolete as a result of our progress in applied science. On the other hand, I am not at all certain that he has chosen the forms most likely to die or the forms most likely to survive. Both psychological and sociological novels have flourished during the ten years since his essay was written, whereas poetry has languished, and philosophy today is scarcely even a sport. But his chief mistake is that he has tried to conjecture the effect of science on literature from the standpoint of the people who create literature. The real effect of science, I believe, has been and will be exerted through the people who enjoy literature, that is, through the audience.

Applied science and technology have created the audience of the present and the future. In the 17th and 18th Centuries books were written by and for a very small literate minority, chiefly composed of city dwellers. The latter spoke a private language — or at any rate a language whose shades of meaning could not be understood by servants or mechanics. As for the peasants, who formed the bulk of the (Continued on page 430)

Biotechnique versus Architecture

BY FREDERICK J. KIESLER

Précis. The theory of biotechnic and its importance for housing design, publicly expounded for the first time. The theory was originated in 1924, at a time when the French and German schools of architecture were chiefly concerned with new forms for old functions — the new theory of biotechnic directly opposes that idea, being interested rather in the development of new functions. Architecture today in regard to exact knowledge or progress in knowledge may be compared to the status of medicine 150 years ago. The question of control of the health of man is scrutinized. Architecture is defined as a means to control fatigue and regeneration, and the science which is concerned with the development of this knowledge is called biotechnic. "We are satiated with architecture. We want no new editions, be they ever so well contrived; for baroque curves, straight lines; for ogival windows, rectangular windows. What interests everyone is 'how does one live among these curved or straight walls? From what sort of life, new life, do these two- or three-dimensional façades arise?'" The future education of the architect must be put on an entirely new basis and turned chiefly from the study of architecture to the study of man.

FAREWELL TO THE OLD ROGERS,

TO utter the words all Technology men feel on the passing of the Rogers Building on Boylston Street, the Alumni Day Committee summoned an outstanding Alumnus and citizen, a man who as a senior was president of the Institute Committee and who has ever since maintained his love for Technology — Dr. C.-E. A. Winslow, '98, of Yale University. Below is what he said at the close of the symposium (see preceding pages) before a great audience in Huntington Hall.

Farewell to Rogers

BY C.-E. A. WINSLOW

WE commemorate today a man, a building, and an idea.

Patrick Kerr Rogers was an Irish rebel who came to this country as a youth, studied medicine at Pennsylvania, and became professor of natural philosophy and chemistry at William and Mary College in Virginia. He had four sons, James Blythe, William Barton, Henry Darwin, and Robert Empie — all scientists, all brilliant — one of the most famous family galaxies of genius in the history of American learning.

William Barton Rogers was the second of these four sons, born in 1804. He studied at William and Mary and later taught school outside of Baltimore. At the age of 22 we find him active in the educational work of the Maryland Institute and forecasting his life task in the following words: "In many places institutions calculated to render useful science attainable by the mass of society have been established; and such is the growing impression of their value that their number continues yearly to increase." Speaking of the Maryland Institute, he says: "And may not its friends believe that the laudable sentiments which led to its erection have been more extensively and permanently impressed upon the

public mind by the evidences which it has already afforded of its useful character? May they not hope that it has become, and will continue to be, an object of the kind regard and fostering care of our philanthropic citizens; that it will be cherished with the guardian attention which was in ancient times bestowed upon the vestal fire whose extinction was thought to be ominous of evil; and that, being thus enabled to diffuse the light of useful knowledge, not only among ourselves but to distant places, it will, by the invaluable results to which it may in time conduct, assist in irradiating with splendour the city which gave it birth?"

In 1828 William Barton Rogers succeeded to his father's chair of natural philosophy and chemistry at William and Mary. Seven years later he was called to the same chair at the University of Virginia and was appointed geologist in charge of the geological survey of the state.

In 1846 Henry Darwin Rogers, in Boston, was discussing with J. A. Lowell plans for a school of arts as a branch of the Lowell Institute, and at his request William Barton Rogers drew up an elaborate "plan for a polytechnic school in Boston" from which the following citations are taken. "A school of practical science completely organized should, I conceive, embrace full courses of instruction in all the principles of physical truth having direct relation to the art of constructing machinery, the application of motive power, manufactures, mechanical and chemical, the art of engraving with electrotypes and photography, mineral exploration and mining, chemical analysis, engineering locomotion, and agriculture." Such a school would require two departments, the first to include the basic laws of physics and chemistry, which should give employment to two instructors, who were also to lecture on some of the applied branches, such as the chemical arts, strength of materials, motive powers, the steam engine, and so on. The other, an entirely practical department, would embrace instruction in chemical manipulation, arithmetical method, and drawing and modeling. This division, besides employing two or three tutors or subprofessors to give personal instruction in the laboratory, workshop, or room for drawing, might invite the aid of eminent practical men to give courses of lectures on the various branches not otherwise provided for. "A scheme of this kind," Rogers adds, "begun with two professors in the scientific department and two subordinate instructors in the other, under the direction of the former, would, I am certain, prove so signally successful as ultimately to require its expansion into a polytechnic college on the most ample scale, in which, along with all the subjects above referred to, would be embraced full courses in elementary mathematics and instruction, perhaps, in the French and German languages. In a word, I doubt not that such a nucleus-school would, with the growth of this active and knowledge-seeking community, finally expand into a great (Continued on page 436)



F. M. Mann, Jr.

THE OLD

"This is a hallowed spot to all who believe in the values of scientific education"

HAIL THE NEW!

TECHNOLOGY'S latest addition — a large and distinguished building with an entrance which will become the principal public approach to the Institute — has, by alumni request, been appropriately named for William Barton Rogers. The dedication address, introduced by President Compton, was delivered by Harry J. Carlson, '92, life member of the Corporation and associate architect of the building with Welles Bosworth, '89. Here in part is his ringing dedication.

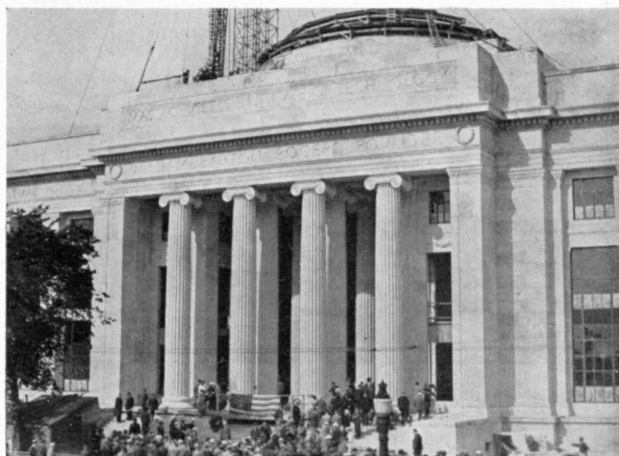
Alia Initia e Fine

BY HARRY J. CARLSON

AFTER the death, in 1882, of William Barton Rogers, the Institute's founder and first President, time at Technology went on with constant struggle until 1916. One night in that year, as darkness fell, an academic procession started down Rogers steps, down Boylston Street, and along Berkeley Street to the river. This procession was led by the President and dignitaries; following them in full academic dress came the Corporation and the Faculty. Two by two, this long line wound to the river's edge and onto the *Bucentaur*, that wonderboat of Technology.

I remember that my marching companion was Pierre du Pont, '90, and that seated on the ship on our way to Cambridge we saw a wonderful sight: the water, the buildings, the shores — all illuminated; overhead the air was full of bursting rockets in brightest colors which brought out in full view our new home in Cambridge on the Charles. Once in the Great Court, we saw the enchantments of Merlin, but I could not help feeling that the real magic was wrought by President Maclaurin, who, dipping his hand into the almost empty purse of Technology, had by his magic powers brought out the great group of wonderful buildings before us and, with this, a renewal of the spirit of William Barton Rogers — which spirit we hope was hovering overhead in the empyrean, happy in the fulfillment of his great dream.

But the group of buildings in 1916 was much smaller than at the present time. Some ten buildings have been added since then, and the latest and largest of these is before you today. The great façade stretching almost 1,500 feet along Massachusetts Avenue has at its center this great domed portico which will in reality be the chief entrance to the Institute. Inside there will be a great lobby surrounded by stone Ionic columns and over this a dome, the top of which is 90 feet above the first floor, a noble entrance to a noble group. Corridors lead from this great lobby into all parts of the new and old buildings. The northern wing and the entire fourth floor will be occupied by the School of Architecture, which was one of the first departments started by President Rogers in April, 1865, when he invited William R. Ware to lay out a course of architectural studies and to be its first head. The balance of the new building is to be occupied by



THE NEW

Technology's new Rogers Building after its dedication "to the service of science and art"

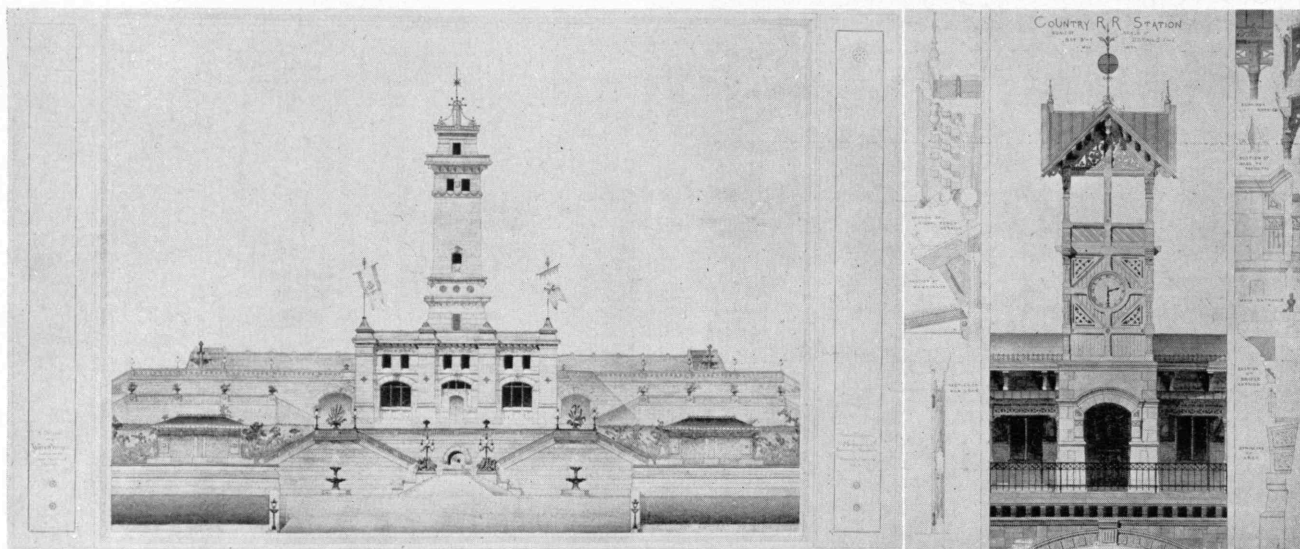
laboratories, offices, lecture rooms, and classrooms; one floor of one wing will contain the new differential analyzer; still another wing will house a new museum.

We all owe a debt of gratitude to Welles Bosworth, '89, who conceived a plan that fixes forever the style and proportions of our later buildings. Too many colleges are burdened with ill-shapen, badly placed buildings of differing breeds and all the fighting colors of the rainbow. We shall never have that trouble; we shall always have unified, dignified groupings that should interest future generations as much as they do us. These, together with our beautiful location on the water's edge and with adequate land on both sides of Massachusetts Avenue, make us indeed rich.

Here I should like to give a word of appreciation to the most excellent organization of Stone and Webster, who as engineers and builders have carried on the construction of this building to the entire satisfaction of all concerned.

It may seem to some of you that our plant is almost complete — that all we need to do is to carry on. As a matter of fact, as we grow, our vision broadens and our needs increase. Our finite minds reach toward the infinite; so our school will continue to grow. Leonardo, Galileo, Newton, and others stood near the foot of the ladder of science and looked up hopefully. Their successors climbed slowly. So our scientists of today do not start at the foot of the ladder but in the heights, by reason of the work of those who have gone before. Much has been given us; much will be expected. Let us not forget that in other lands scientists are hampered and restrained if not actually removed. We must keep our liberties to keep our future secure, or else we may go down the ladder and not up.

Our latest job, just received, is to harness the sun, and when that is done — as it will be — then we will reach out still further, for the motto on the President's mantel is true: "*Alia initia e fine*," which may be freely translated: "Each ending merely means a new beginning." So, today, we dedicate this, our newest building to our founder, to our first President, William Barton Rogers.



Left. A design for waterworks, engine house, standpipe tower, and reservoir by the late Henry A. Phillips, '73, the first graduate of a school of architecture in any Anglo-Saxon country. The problem is interesting because of its engineering nature, because the solution looks very real, that is, looks like a building

which might have been built about then, and because the design is not General Grant Gothic.

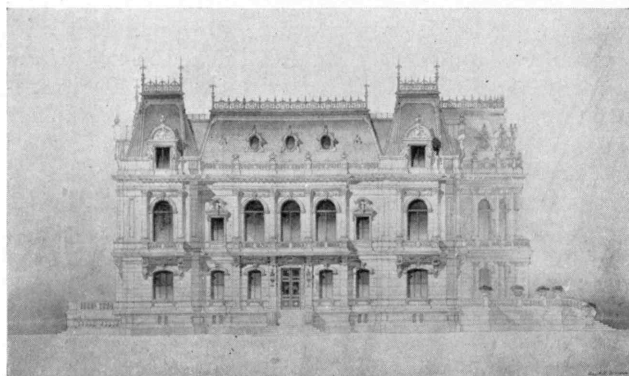
The drawing on the right, a year later, shows a country railroad station with a wood tower that recalls a style peculiarly American

Architectural Cavalcade

Reflections on the Retrospective Exhibition Covering 73 Years of Education in the Nation's Oldest Architecture School

BY JOHN E. BURCHARD

THE School of Architecture of the M.I.T. has the distinction of being the oldest school of architecture in any Anglo-Saxon country. It has had the good sense to preserve student drawings from the very founding of the Course under William R. Ware in 1865.



1894

Thesis by Frederick Maynard Mann, '94, retired head of the school of architecture of the University of Minnesota. The design is apparently for a museum; the side view shown here includes the entrance to a club in the museum. This is an excellent example of a monumental building of the period, with the influence that of the French Classic

For its exhibit on Alumni Day it was thus in a fortunate position to make an extraordinarily complete presentation of the trends in the study of architecture over a considerable period. The committee entrusted with the job of creating such an exhibition had at its disposal, therefore, a wealth of material.

It speaks well for the exhibition sense of the committee that it was not embarrassed by these riches. Such an exhibition could easily have been overcrowded. But the group who hung the drawings avoided this pitfall by exercising selectivity in advance; they avoided the equally tempting trap of making fun of the past. The show was dignified, attractive, informative, and in every way distinguished. The exhibition repeated brilliantly a platitude about style which is by no means always accepted. It is common for architects or artists who have been sponsors of a style which is passing to defend it against the one which is coming by uttering this platitude; it is equally common for the proponents of the new to deny its truth and to affirm with some heat that their new fashion will never be subject to its rule. This platitude may be expressed as follows: "The style in which a given building is created is per se of little consequence. If the plan, the arrangements of the building afford proper service for the building, it is

possible to look upon the style almost as a fashion. There are, however, some styles (to wit the one the speaker prefers) which look less ridiculous when they are unfashionable than others may; such styles have permanence."

The fore part of the exhibition, which was chronological, a sort of Cavalcade of architectural fashion, indicated this point rather neatly. There were many drawings which looked as funny to us as an old hat or a bustle might; there were also buildings which prevailed despite their dress. The exhibition was little disposed to laugh at stylistic extravagances of the past and still less disposed to present the stripped style of the present as being necessarily the ultimate in architecture. By exercising this restraint, it succeeded in making its major point.

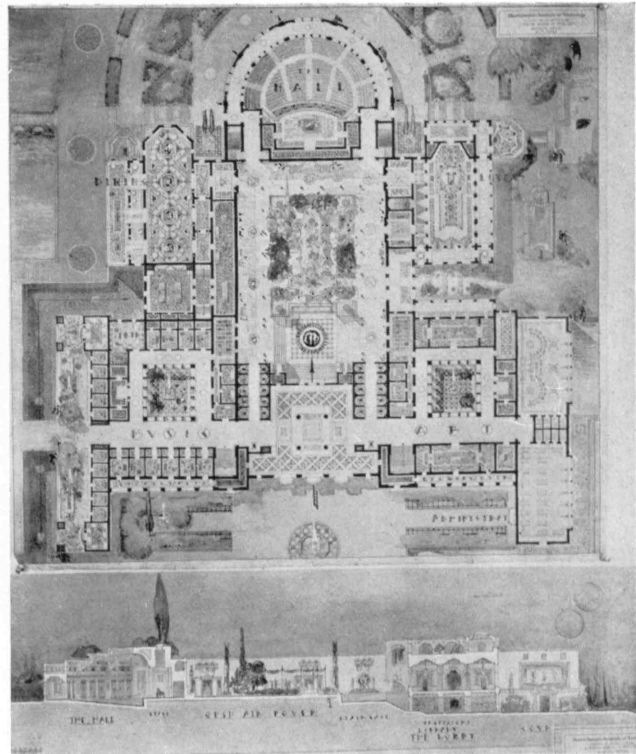
The major point had to do with the reasons for studying various programs in architecture. For most of the years which the exhibition spanned, a principle of architectural education held that one should study large buildings, such as museums, libraries, courthouses, as lessons in grand planning and with relatively little regard for their particular function. In this way, so the theory went, the architectural student, also uninhibited by economic or site considerations, might develop a fine sense of composition and balance. That these latter

1938 (below)

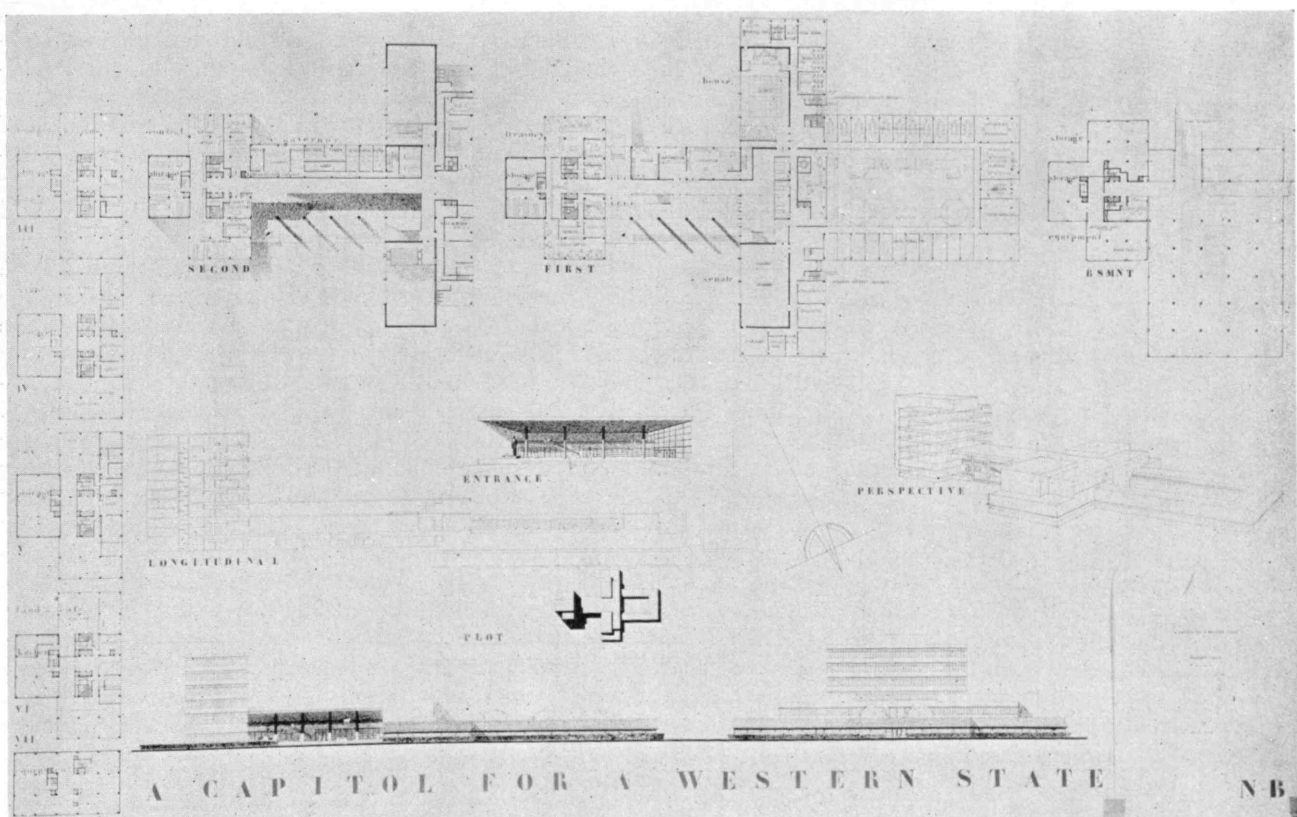
1938 . . . *A capitol for a western state* by Robert H. Hose, a graduate student. Formerly a subject devoted to studies of monumental effect, under the present idea the public building has become a subject for study of detailed internal requirements. There is an effort to find their proper external expression without exaggeration for effect

1927 (above)

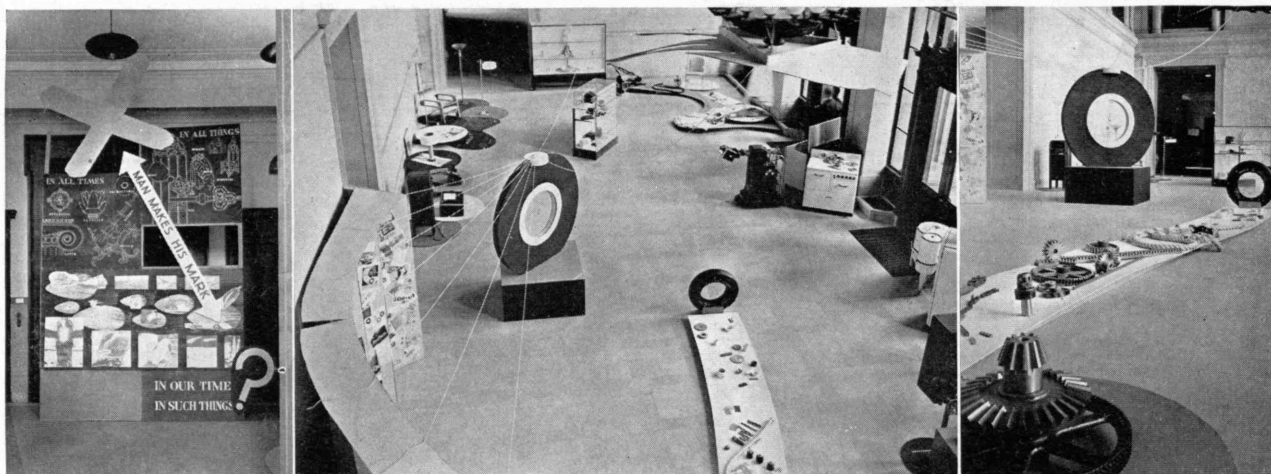
1927 . . . *A graduate design* by John Frederick Buenz, '26, for "a summer school of fine arts." This illustrates the enriched drawing (enriched as decoration rather than as study of plan requirements), the use of heavy color, the artistic subject matter, and the tradition of Jacques Carlu, who was appointed professor of design in 1924



EXHIBITION



EXHIBITION



M. I. T. Photo

INDUSTRIAL DESIGN EXHIBIT

To give Alumni and guests opportunity to see how artists and engineers are collaborating in the production of beautiful utilitarian objects, an exhibition was arranged in the Main Lobby of the Institute. As these photographs inadequately show, the display illustrated how an industrial design is conceived

and developed and showed characteristic products of outstanding designers, such as the handsome Westinghouse x-ray machine. Explored, too, were the sometimes false implications of the teardrop shape. Supplementing the exhibit was a collection of photographs selected by The Review

senses were well developed the exhibition left no doubt. That we may have suffered in some of our public buildings because of the theory will also be obvious to anyone who uses them.

Architectural education has frequently and even recently been criticized by the socially minded because it has paid little attention to the dwelling. By dwelling these critics mean, of course, either the small and cheap detached house or low-rental housing. Dwellings in the broadest sense have been the concern of architectural study since its inception. But for many years, as the exposition revealed, the concern was distinctly with the wealthy.

By 1922 the problems had begun to come down to earth. Of this year there was shown a perfectly possible town house, still an elegant house, still an expensive house, still for no particular person and on no particular site but at least in scale corresponding to something the prospective student might someday have a chance to create. From 1930 there was a study — a more modern-minded study — for coöperative apartments, but even then economics was not much in the foreground, for this rather magnificent group contained a ballroom.

In sharp contrast with these were three recent studies: From 1937 there was a program for a town house on a real site — a difficult site on Beacon Street overlooking the Charles River Basin, a noisy street coupled with a beautiful vista — to be designed for a painter who had to work there, who had a specific number of children of specific age, a definite income, definite service needs, and who wished to abide by the provisions of the Boston Building Code. From 1938 there was a similar complete program for a suburban house to be built on the existing basement of a house which had been burned down. Finally, also from 1938, there was a low-rent housing project for the city of New Orleans, designed by a native of that city, a girl who had spent two years in social work there and brought her own experience to the design. She used social studies made by Tulane University as guidance, arranged her project to fit the latest

requirements of the latest government bureau of housing, and documented her drawings with photographs of the low-grade Negro district which was to be reclaimed — with a topographic site plan, with a map of the city, with the structural design, with a scale model of the whole project, and with a highly readable report discussing the need, the economics, and the solution.

In all of these studies the prevailing impression as to what the students seek to do with the outside is that they try to make a working and beautiful front for the internal services but that their thinking will not permit compromising those services for the sake of what might seem a better front. Necessarily also men who are making and studying maps and examining statistics, technical needs, materials, making models before completion of a project do not have time to do a great deal of rendering. If they want mosaics in a building, they cannot draw every line of a mosaic; it is unimportant that they should. So the final drawings are cleaner and simpler than those of the past.

One who dislikes what is loosely called International Modernism need have no qualms because many of the student designs of today are of that general school. The real point is that these designs indicate thinking to a degree which had apparently not been practiced in architectural education in the schools up to a few years ago. Students and staff alike of the School of Architecture have demonstrated by this exhibition not only their capacity for close study of the serious problems of today but their will to such study. When they move to the new environment in the fall, in close juxtaposition to the scientific and engineering departments of the Institute, departments long trained in the closest of coöperation, the cross-fertilization which must occur will be of the greatest significance to both. After seeing the exhibition and after viewing the coöperative prospect of the future, he would be a timid critic indeed who would not dare to prophesy that the School of Architecture which has produced so many of the great architects of the past will far exceed this performance in the years to come.

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Honor to Dr. Bush

WHEN President Compton remarked at the Alumni Dinner that "there is no member of our staff who has been so constructively helpful to everyone who had a problem, whether personal or professional," he summed up the affection and respect we all hold for Vannevar Bush, '16, Vice-President and for six years dean of engineering, who has been elected to the presidency of the Carnegie Institution of Washington. We congratulate him on his election to so distinguished a position, and we have confidence that he will make it one of the most influential scientific posts in the land, but we shall miss him sorely. We shall miss the stimulation of his wide-ranging, trigger-quick mind, the rigorous, analytical powers which inspire and require high standards, the humor and warmth and simplicity which make an outstanding scientist and administrator a delightful man.

AS president of the Carnegie Institution, Dr. Bush will hold the highest administrative position in one of the world's largest foundations devoted to the advancement of knowledge by research for the benefit of the public. Its admirable resources include research stations in various countries, and its interests range from marine biology to archaeology. Mount Wilson Observatory in California, which has the most complete astronomical equipment in the world, is the Carnegie Institution's most famous scientific station. In Mexico and Central America the institution has made extensive archaeological studies of the great Mayan ruins. Still another station is maintained on one of the Dry Tortugas islands in the Gulf of Mexico.

The Carnegie Institution has long been distinguished for its investigations of terrestrial magnetism. It also maintains a large geophysical laboratory as well as a research department on nutrition, an embryology laboratory, a eugenics record office, a division for historical studies, and a botanical research division, including a laboratory in Monterey, Calif. The institution's magnificent laboratories and administrative buildings in Washington are headquarters for its far-flung scientific projects. The work of the institution is carried on under an endowment of approximately \$34,000,000.

Dr. Bush graduated from Tufts College in 1913, received his doctorate from M.I.T. in 1916, and became a member of the Institute staff in 1919. During his years at M.I.T., Dr. Bush has been particularly interested in the design of advanced mathematical analyzing instruments and has had charge of a group of research workers who have produced several important instruments of this type. In recognition of the development of the product integrator he was awarded the Levy Medal of the Franklin Institute in 1928. Wide recognition was also given to the design of an intricate ana-

lyzing machine called the differential analyzer, an advanced model of which is now under construction. This machine greatly increased the speed of scientific and engineering calculations. Another instrument in this group is the cinema integrator, which is just going into use. For his achievements in the development of methods and devices for the application of mathematical analysis to problems of electrical engineering, the American Institute of Electrical Engineers in 1936 awarded Dr. Bush the Lamme Medal. Dr. Bush has made many important contributions to the improvement of vacuum tubes and has done distinguished research in the field of electric power transmission. He has also carried on important studies of transients in machines and dielectric phenomena.

Dr. Bush first came to the Institute as professor of electric power transmission, and later made a comprehensive study of the undergraduate curriculum in electrical engineering to develop the most efficient methods of instruction in this field. His career as a teacher has been no less notable than his achievements in research.



Harris and Ewing

VANNEVAR BUSH, '16

President-elect of the Carnegie Institution of Washington

The New Dean of Engineering

ALTHOUGH Dr. Bush remains as vice-president of the Institute until January 1, 1939, he relinquished his post as dean of engineering on July 1. His successor as dean is Edward L. Moreland, '07, Head of the Department of Electrical Engineering and in 1935-1936 President of the Alumni Association.

Dean Moreland, who has been head of the Department of Electrical Engineering since the retirement of Professor Dugald C. Jackson in 1935, is a native of Virginia and received his bachelor of arts degree from Johns Hopkins University in 1905. He came to Technology for his advanced studies and was awarded the degree of master of science in 1908. That same year he entered the Boston engineering firm of D. C. and William B. Jackson, which in 1919 became the firm of Jackson and Moreland. The members of that firm, in addition to Professor Moreland, who is senior partner, now are Frank M. Carhart, '05, and Ralph D. Booth, '20.

The firm has directed many important engineering projects, including electrification of the Great Northern Railway through the Cascades and electrification of the suburban system of the Lackawanna Railroad, as well as projects for the Boston Edison Company, the New York Edison Company, the Philadelphia Electric Company, and the New England Power Association. The firm has also done a large amount of work for public utility commissioners, municipalities, and other public bodies.

During the World War, Professor Moreland served as captain and later as major of engineers in the American Expeditionary Forces. After the Armistice he was appointed technical executive of the War Damage Board, and he now holds the rank of lieutenant colonel in the Engineers Officers Reserves.

As a fellow of the American Institute of Electrical Engineers, Professor Moreland has served on many of its committees. He is also active in the American Standards Association, representing the American Institute of Electrical Engineers on the Standards council, the sectional committee on standardization of mercury-arc rectifiers (of which he is chairman), and the American advisory committee to the International Electrotechnical Commission on Electric Traction Equipment. He also represents the American Society of Mechanical Engineers on the sectional committee on standardization of pipe flanges and fittings.

He is a fellow of the American Academy of Arts and Sciences and holds membership in the American Society of Civil Engineers, the Boston Society of Civil Engineers,



Frederick B. Wolf, '28

EDWARD L. MORELAND, '07

Technology's new Dean of Engineering vice Vannevar Bush, resigned

the American Society of Mechanical Engineers, and the Society for the Promotion of Engineering Education. He is also a member of Tau Beta Pi, honorary engineering fraternity, and Sigma Xi, the honorary scientific research fraternity.

Alumni Fund Campaign — a Report

HIGH spot in President Compton's report at the Alumni Dinner on the state of the Institute was his announcement that the Alumni Fund Campaign had collected in contributions or pledges sufficient funds to enable the Institute to proceed with the first step in building adequate recreational facilities at Technology.

Said Dr. Compton: "This Alumni Fund Campaign was planned and announced in the recent months when we all thought that the nation was safely on the upward path to the more abundant life. Perhaps we were led into undue confidence by the pronouncement from national headquarters that 'we planned it that way, and don't let anyone tell you differently.' At any rate we planned our Campaign that way, too. But just as our Alumni Fund Committee got its work started, the bottom began dropping out, and no one knew how far or how long it would drop. And you know what happened as well as I do.

"It soon became evident that nothing like the goal of \$1,650,000 could be achieved under the circumstances. As the economic situation grew worse, it looked more and more as if the fund raised would be too small to accomplish any really useful purpose. Then two things happened: The committee on gymnasium plans, reinforced by members of our architectural Faculty, prepared a revised plan whereby the ultimate structure could be economically built in several stages, as funds become available; and a selected group of Alumni, many of whom had already contributed, came through within the last two weeks with sufficient contributions to enable me to announce, at this time, that \$400,000 is now available, and that this is adequate to permit us to proceed with the following units of the program: construction of a new track and revised group of outdoor playing fields west of Massachusetts Avenue and building of an adjoining field house with lockers and showers; and erection of a swimming pool and an adjoining unit to provide additional locker space, showers, athletic association offices, and equipment rooms on the site of the present track and connected with the Barbour Field House. This construction will, in addition to the facilities mentioned, afford considerable relief in the congestion of the Walker Memorial building through transfer of the athletic offices. Thus there will also be a net gain to many other student activities.

"Thus, while the original objective has not been fully achieved, nevertheless a very substantial and valuable contribution is made to those facilities of the Institute

which 'build the man as well as the mind.' The achievement is one well worth the effort and the cost, and, considering the unanticipated economic collapse, the achievement is one in which all concerned may take legitimate pride.

"As to the future extension of this program when still more funds become available, the opinion of the committee is that the next steps, in order of priority, are the additional small gymnasium floor, the conversion of the third floor of Walker Memorial into a little theater-auditorium, and the erection of a cage. To construct this group will require an additional \$250,000. This will still leave the large gymnasium-exhibition-assembly room and the final addition of squash and special sports rooms to complete all the facilities envisaged in the original plan.

"The Alumni Association and the Institute owe a great debt of admiration and appreciation to the large committee of nearly 2,000 workers who mobilized against heavy odds to take active part in the Campaign, and to those who, despite their own financial problems and worries, contributed generously to the Fund. I would especially express my admiration of the way in which the local executive committee and staff performed far more than their normal duties. I cannot but pay my sincere respects to your retiring President, Marshall Dalton, '15."

The construction schedule calls for the beginning of the new track — across Massachusetts Avenue — immediately, the construction of its adjacent field house in the fall, and the construction of the new gymnasium in the spring of 1939. The track and field house should be ready for use in the spring, and the gymnasium units ready about January, 1940.

Gifts During Past Year

IN addition to the generous amount raised by Alumni for recreational facilities, the Institute has received during the past year over \$2,000,000 in bequests and donations.

This impressive and encouraging total includes the following: the late Charles Hayden, '90, bequest for general endowment (The Review, February, 1937), \$1,000,000; Godfrey Lowell Cabot, '81, to endow, for 50 years, research on the utilization of solar energy (The Review, June), \$647,700; the late Francis H. Williams, '73, for chemistry (The Review, November, 1936), \$102,064; Research Associates, including a contribution of \$10,000 from Sir Douglas Alexander, \$42,800; contributions for maintenance of Industrial Relations Section, \$42,000; William A. Burden, Frederick B. Rentschler, Edward Mallinckrodt, Jr., and the Curtiss Wright Corporation (to be added to funds previously contributed), for the Wright Brothers Memorial Wind Tunnel, \$32,500; John and Mary L. Markle Foundation, for a cyclotron (described below) to be used exclusively for co-operative medical research and therapy, \$30,000; Pierre S. du Pont, '90, \$25,000; Genradeo Trust, for research, \$16,800; contributions to build a propeller testing tank, \$15,000; anonymous, for the Bess Bigelow Fund, \$15,000; anonymous, for special research in metallurgy, \$10,000; Roger Babson, '98, for writing or research in

economics, \$10,000; Godfrey M. Hyams Trust, for an improved high-voltage x-ray outfit to be built for tests and then given to the Massachusetts General Hospital.

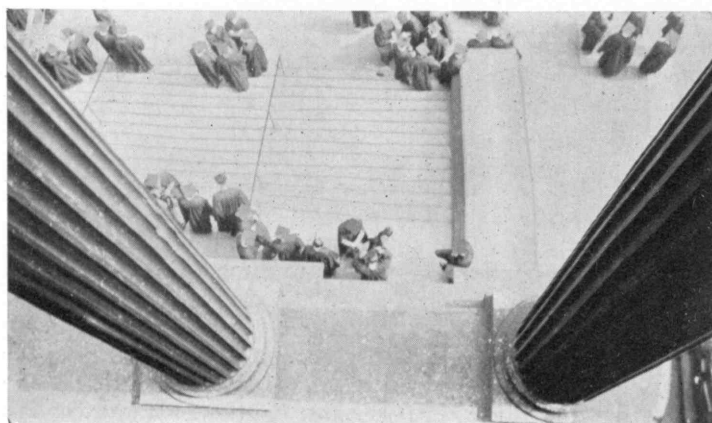
Cyclotron

THE John and Mary B. Markle Foundation has made a grant of \$30,000 to the Institute for the construction and equipment of a cyclotron to be used exclusively for co-operative research in medicine or in biological investigations with a medical objective. This cyclotron, which President Compton mentioned in his address at the Alumni Dinner on June 6, will be of the most approved type and of the same general size as the largest which have yet been built, with the exception of the giant cyclotron now under construction at the University of California by its designer, Professor Ernest Lawrence. These cyclotrons have now become routine tools of investigation in the field of atomic physics, and the only unusual feature of Technology's instrument will be its devotion exclusively to medical and biological purposes.

The Institute is in a fortunate position to undertake this work for two reasons. The first of these is because Professor Robley D. Evans, under whose direction the cyclotron will be built and operated, has developed an unusually successful technique for the detection, measurement, and handling of radioactive chemical elements of the type which can be produced in large quantities by a cyclotron. For this technique, as applied specifically to radium poisoning, he was awarded the Theobald Smith prize of \$1,000 by the American Association for the Advancement of Science a year ago, given for an important contribution to medical science by a man under 35 years of age. Up to the present, Professor Evans has had to work with a relatively feeble source of radioactive materials, but he has nevertheless done some very interesting exploratory work regarding the medical possibilities in the use of particular radioactive elements, in collaboration with several members of the Harvard Medical School and local hospitals, and also in collaboration with members of the Institute's Department of Biology and Public Health at Technology. The new cyclotron will permit this work to be greatly extended in power and scope, and the program may be considered as a joint one between Professor Evans' group of physicists together with biologists at M.I.T. and medical research men in neighboring institutions.

The second fortunate element in the situation at Technology is the parallel program of the high-voltage electrostatic generator of Professor Robert J. Van de Graaff, who, with his colleagues, is engaged in a very comprehensive program of atomic physics. This program comprises not only the very important medical x-ray applications, which a cyclotron is inherently unable to handle, but includes also a comprehensive program of investigation in atomic physics which will parallel the investigations that can be made with the cyclotron.

A cyclotron is an instrument for accelerating ions — which may be described as atomic bullets — to the very high velocities required for use in atomic disintegration experiments. Its operating principle differs in one important respect from that of the direct-current electro-



William V. Cash, '24

ON ROGERS STEPS

As reported below, Alumni are making efforts to erect a memorial to Rogers Building on the Institute campus in Cambridge

static generator designed by Dr. Van de Graaff. In the cyclotron the ions receive a large number of successively applied moderate accelerations or boosts instead of a single high-voltage acceleration as in the Van de Graaff machine.

Graduation

AT the Institute's 71st graduation ceremonies on June 7, a total of 581 degrees was awarded by President Compton to 549 candidates, 32 of whom, having completed the five-year courses, received both the bachelors' and masters' degrees. The total number of bachelors' degrees awarded was 378. The 203 advanced degrees included 18 doctors of philosophy, 30 doctors of science, and 155 masters of science. In addition to the academic degrees, one certificate in public health was awarded. Among the graduates were seven young women.

In Memory of the Rogers Building

EVER since it became known that the Rogers Building was to be demolished, there has been a demand from Alumni who knew and loved the building that some portion of it might be preserved in Cambridge as a lasting symbol. This demand was placed before the annual meeting of the Alumni Council in May by Professor George E. Russell, '00, and the council promptly voted that action be taken to secure and preserve appropriate parts of the building so that they might later be available when a suitable design and sufficient funds were at hand.

A committee has been appointed, headed by Professor Russell, to study this memorial, and a tentative design has been arrived at, which employs one of the handsome columns on the façade of Rogers, the cornerstones, and the steps. The steps will be used to form a well-proportioned, square base, upon which the column might be mounted.

Professor Russell and his committee will welcome suggestions from Alumni, both as to the design and the securing of funds for the memorial. There is no question

that there is a wide demand for such a memorial to Rogers and that it can be constructed in a way that will be esthetically sound and eloquently expressive of that feeling of the Alumni for the Rogers Building which Dr. Winslow, '98, so beautifully expressed in his farewell address on Alumni Day (see page 414).

Visiting Committee Reports

OUR series of Visiting Committee Reports is continued this month with condensations of three recently submitted to the Institute's Corporation: on Civil and Sanitary Engineering, that on Hygiene, and that on the new Department of Metallurgy.

CIVIL AND SANITARY ENGINEERING *

THE Committee approved the action of the Institute in reducing the charge for the Civil Engineering Summer Camp from \$180 to \$100, as well as the move to draw students not only from other Courses at the Institute but from other institutions to the summer camp. The Committee discussed whether the camp should be held in the earlier part rather than the latter part of the summer but concluded the present schedule is the more satisfactory.

The Committee noted the absence of any staff member in civil engineering to teach advanced theoretical hydraulics but was not concerned in view of the fact that other departments are teaching this course and can render service to the Civil Engineering Department. It noted, too, that the mechanical equipment for research work in mechanical analysis of structures, seismological effects on structures, and soil mechanics, while sufficient for the present, is no more than adequate and should be added to. The Committee felt that highly significant work was being accomplished in these laboratories.

The Committee recommended that, in addition to the current seismological research now under way, the study of dams should be added. The study of the effect of earthquakes on dams, made in cooperation with United States Army engineers, the Reclamation Bureau, and other appropriate Federal agencies, would seem to offer a fertile field for research.

The Committee studied the problem of the declining registration in sanitary engineering and suggested that the opportunities presented in the Course might be more persuasively brought to the attention of students.

Finally, it noted with approval the changes about to be made in the curriculum of Course XVII — Building Engineering and Construction — and believes they will result in students getting a broader grasp of fundamentals. The Committee felt that the study of materials should be extended, particularly some of the newer building materials.

* Members of this Committee for 1937-1938 are: Charles E. Smith, '00, Chairman, William E. R. Covell, '23, Harry P. Hammond, Randall Cremer, '12, William R. Kales, '92, General George B. Pillsbury, '98, and Maurice R. Scharff, '09.

DEPARTMENT OF HYGIENE *

THE Committee noted that the Infirmary reception room was not provided with outside lighting, nor did there seem to be adequate provision for ventilation, particularly in view of the large number of students who pass through the room. Two possible remedies were suggested: (1) that the reception room be enlarged to include a room on the east, provided that this could be made available; and (2) that a partition on the north, which now obscures a single window, be removed. Since the Committee did not feel qualified to act on this matter, it was suggested that Dr. George W. Morse, Medical Director of the Institute, make a further study of the possibilities for increased light and ventilation.

The Committee discussed the desirability of making vaccination for smallpox and inoculation for typhoid prerequisite to admission to the Institute. At present these are both optional to all students other than those electing to take advanced military science. Since the Committee was not prepared to take formal action, the recommendation was made that the Department be advised to confer with the Department of Biology and Public Health on the desirability of requiring vaccination for smallpox and/or inoculation for typhoid of all entering students, and that a recommendation on this matter be submitted to the Committee at a later meeting.

A report on a proposed dental clinic, prepared by Professor Bunker of the Department of Biology and Public Health, was read in part, and the Committee concurred wholeheartedly with the contents of the report and the recommendations made therein. On motion duly seconded, it was voted to recommend strongly that Professor Bunker's report be accepted and that the recommendations made for dental clinic facilities and staff be carried out at the earliest possible opportunity.

The Committee discussed at length the pressing need for the addition to the Infirmary staff of a competent psychiatrist. In emphasizing the importance of psychiatric treatment of high quality, the fact was brought out that nearly half of all hospital beds are at present occupied by people suffering from mental disorders. While recognizing the extreme importance of suitable provision for mental hygiene, the Committee was not prepared to formulate a definite proposal. Instead, the Chairman was instructed to name a subcommittee to make a thorough study of the Department's needs and to prepare a report which could be placed before the Committee on or before its next meeting. Accordingly, the Chairman named a committee as follows: Dr. Stearns (chairman), Dr. Mixter, and Dr. Winslow. It was understood that Dr. Morse would assist the subcommittee in the study.

In the discussion of mental hygiene the fact was brought out that the entrance requirements do not preclude an applicant from admission to the Institute on psychiatric grounds. While this is a matter requiring administrative decision, the Committee believed that

* Members of this Committee for 1937-1938 are: William R. Kales, '92, Chairman, Harry J. Carlson, '92, Dr. A. Warren Stearns, Marshall B. Dalton, '15, Lamot du Pont, '01, Dr. Charles-Edward A. Winslow, '98, and Dr. William J. Mixter, '02.

only such students as were in a healthy mental condition should be regarded as qualified applicants.

Immediately following the meeting an inspection trip was made through the Infirmary. Everything was found to be in very satisfactory order.

DEPARTMENT OF METALLURGY *

THIS is a new Committee for a new Course — Course XIX — established last year by separating metallurgy from mining engineering. The Committee felt that much progress had been made during the past year and that the outlook is promising. To this conclusion the Committee added the following three recommendations: (1) It is possible that somewhat less emphasis need be placed on ore dressing and fire assaying, particularly if part of the time now allowed these subjects be devoted to others which are less specialized. (2) The substance of the subjects in applied mechanics should be reviewed, with the idea that the instruction be adapted as well as possible, under the conditions, to the training of metallurgists. (3) Provision should be made as soon as possible for proper office quarters for the instructing staff and assistants.

The Committee also examined the curricula in ceramics and electrochemical engineering. As to the first it recommended that the staff be reinforced by the provision of an additional instructor to assist in the teaching, and that the laboratories which are now in widely separated locations be consolidated. The Committee felt that the graduate course in ceramics is well conducted and altogether a credit to the Institute. Electrochemical engineering, the Committee felt, should be made available to a much larger number of students, and it accordingly recommended that the formal, separate, and distinct Course XIV be discontinued, that the Department of Metallurgy have the responsibility for teaching or having taught to students those subjects having to do with the use of electricity in winning, refining, plating, and treating metals, and that the Department of Chemical Engineering undertake that part of the instruction and research work which has to do with the application of the electrolytic cell or the use of electrothermic processes for producing or affecting substances other than the metals. These recommendations affecting electrochemical engineering were accepted by the Institute administration, and an announcement was made of the changes in *The Review* for May.

* Members of this Committee for 1937-1938 are: Rufus E. Zimmerman, '11, Chairman, Bradley Dewey, '09, John Johnston, Frank F. Colcord, '98, George E. Whitwell, '14, Irving W. Wilson, '11, and Charles H. Herty, Jr., '21.

The Review is not published during the summer months following July. This issue, therefore, concludes Volume 40. Number 1 of Volume 41 will be published on October 27 and dated November. Readers who bind their copies are reminded that if they possess nine issues of Volume 40, their files are complete. An index to the volume will be ready on August 15 and will be supplied post-free upon request.

DESIGN IN MODERN LIFE

(Concluded from page 409)

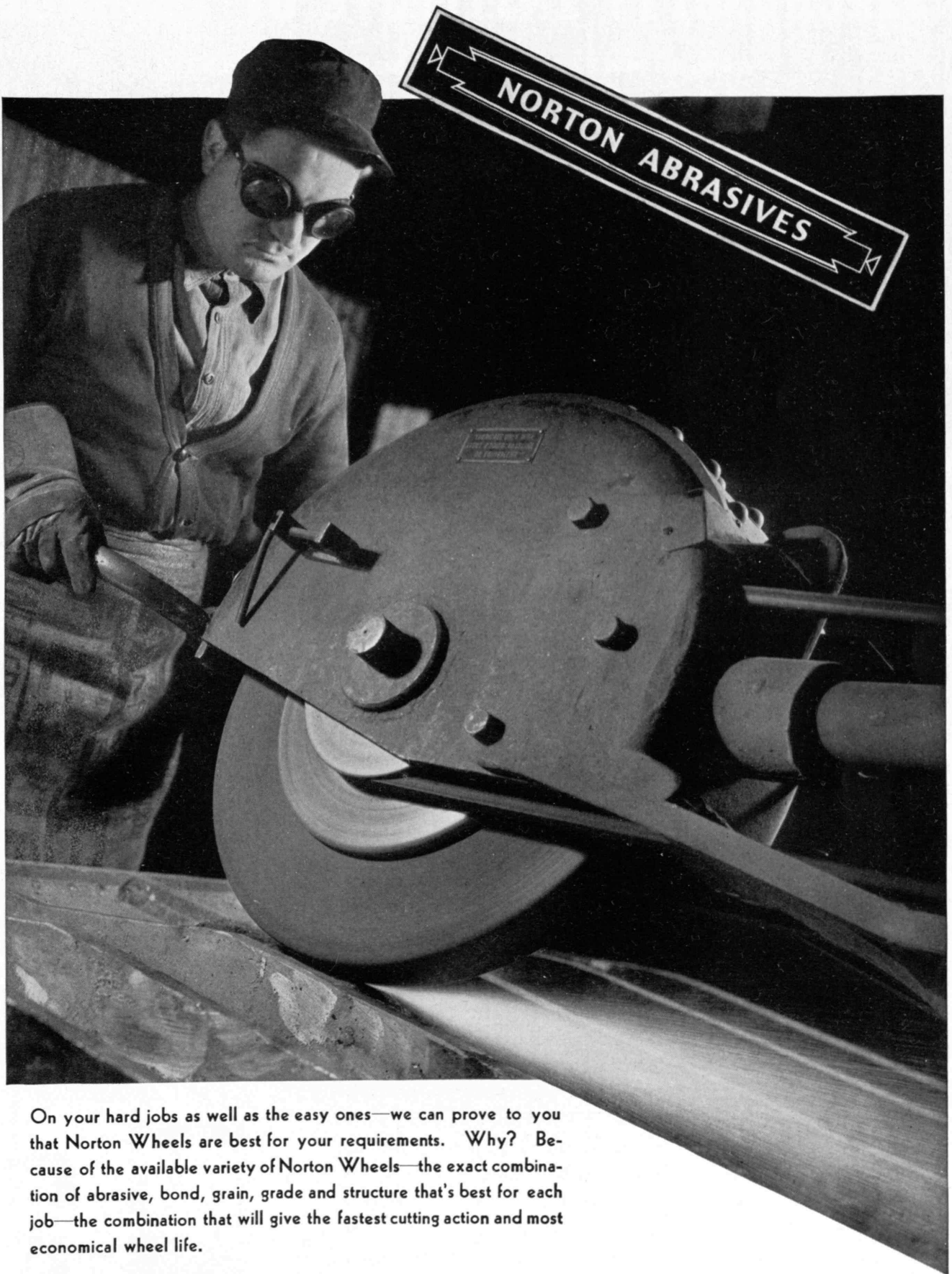
- LE CORBUSIER (pseudonym of C. E. Jeanneret-Gris). *Aircraft*. New vision series, No. 1. Studio Publications, Inc. (New York), 1935.
Collection of 124 photographs, including views of whole aircraft and parts of aircraft.
- LE CORBUSIER. *Towards a new architecture*. Payson (New York), 1927.
In this treatise on the new architecture required by our machine age, a French architect discusses the application of engineering and mathematics to architecture and the correlation between beauty and economy or fitness.
- LEVY, JULIEN. *Surrealism*. Black Sun Press (New York), 1936.
The case for Surrealism, both a history of the movement and an explanation of its influence upon contemporary art.
- LOEWY, RAYMOND. *The locomotive*. New vision series, No. 3. Studio Publications, Inc. (New York), 1937.
One hundred and twenty-five illustrations arranged by a famous designer to represent the development of the locomotive from Richard Trevithick to today.
- MCGRATH, RAYMOND, and A. C. FROST. *Glass in architecture and decoration*. Architectural Press (London), 1937.
A comprehensive work (664 pages) dealing with the making of glass, its nature and properties, and its uses in contemporary architecture and engineering both as building material and decoration. Has an extensive bibliography and wealth of illustrations.
- MILLS, JOHN, '09. *A fugue in cycles and bells*. Van Nostrand (New York), 1935.
The relations between science and music, particularly the influence of electrical discoveries on the development of radio, phonographs, films, and the music of the future.
- Modern publicity, 1937-1938*. Art and industry annual. Studio Publications, Inc. (New York).
- MOHOLY-NAGY, LADISLAUS. *The new vision, from material to architecture*. Translated by D. M. Hoffmann. Brewer, Warren and Putnam, Inc. (New York), 1932.
Based upon the author's lectures at the Bauhaus, this book is generously illustrated with examples of students' experiments and typical contemporary achievements.
- MUMFORD, LEWIS. *Technics and civilization*. Harcourt, Brace (New York), 1934.
Describes three phases in the development of machine civilization from the 10th Century to today and considers the social benefits and ills resulting from the development of the machine. An important background book for industrial design students.
- MUSEUM OF MODERN ART, NEW YORK. *Machine art, March 6 to April 30, 1934*. Museum of Modern Art, New York, 1934.
Profusely illustrated catalogue of an exhibit of machine-made articles, including machines and machine parts, household and office equipment, kitchenware and household furnishings, scientific instruments and laboratory equipment.
- OZENFANT, AMEDÉE. *Foundations of modern art*. Translated by John Rodker. Brewer, Warren and Putnam, Inc. (New York), 1931.
Though the author is primarily interested in painting, he also discusses literature, sculpture, architecture, music, machinery, and the art of living. Many illustrations.
- PEVSNER, NIKOLAUS. *Pioneers of the modern movement from William Morris to Walter Gropius*. Faber and Faber (London), 1936.
Excellent source book and fine bibliography.
- PEVSNER, NIKOLAUS. *Enquiry into industrial art in England*. Macmillan (New York), 1937.
The industries studied are those producing furniture, metalwork, fixtures, textiles (including carpets), pottery, glass, silver and plate, aluminum and enamel, jewelry, radio cabinets, leather, package materials, and motorcars. Has good bibliography.
- READ, H. E. *Art and industry: the principles of industrial design*. Harcourt, Brace (New York), 1934.
Modern developments in art as they affect the design of mechanical objects in everyday use. An important book.
- READ, H. E. *Art now: an introduction to the theory of modern painting and sculpture*. Revised edition. Harcourt, Brace (New York), 1937.
"Remains and is likely to remain the best and most complete exposition of contemporary art in painting and sculpture." — *Times Literary Supplement* (London).
- ROTHA, PAUL. *Documentary film*. Faber and Faber (London), 1936.
Discusses the implications and possibilities inherent in the new art of documentary films, that of filming action direct from life.
- WATSON-BAKER, W. *World beneath the microscope*. New vision series, No. 2. Studio Publications, Inc. (New York), 1935.
Reproductions of photomicrographs of tiny plants, shells, animals, and inorganic matter, enlarged so as to be visible to the naked eye.
- WOLLIN, N. G. *Modern Swedish arts and crafts in pictures*. Scribner's (New York), 1931.
"A concentrated pictorial survey of the results that have been achieved within the various departments of Swedish arts and crafts from 1917 until the present." — *Introduction*.
- WRIGHT, F. L. *The disappearing city*. Payson (New York), 1932.
Sets forth Mr. Wright's ambition to decentralize the city and to arrange work, living, and recreation requirements so that man can work, live, and play in close proximity to nature.
- For help in selecting the material in this list, eighth in a series of M.I.T. Library reading lists, thanks are due Miss Florence W. Stiles, '22, librarian of the School of Architecture, and Theodor C. Müller, '26, lecturer in industrial design at the Institute. For information given in the notes, the compiler has drawn freely from the Book Review Digest and other review sources. Reprints of these lists may be obtained from the Institute Library.*

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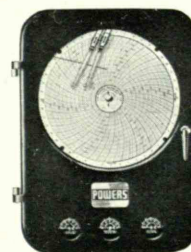
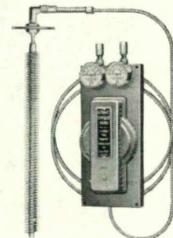
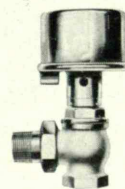
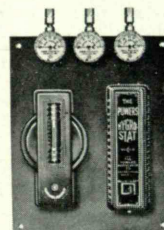
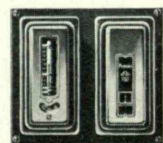
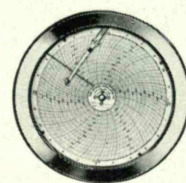
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ENGINEERING AND ART

(Continued from page 412)

today is the applied science of tomorrow; at least, the applied of today was pure yesterday.

To limit our terms, let us distinguish, for example, between art and artists — between a body of attitudes, principles, and techniques and any individual or all who adopt those attitudes, practice the principles, and apply the techniques. That is not to say that art is independent of artists but rather that the whole is greater than its parts and that art transcends artists as science transcends its adherents and proponents. Now having separated artists from their art, let us next distinguish between art which finds its embodiment in unique products and that which feeds the machine industry and appears in a myriad of facsimiles. The distinction may seem academic: It may seem that there are not two kinds of art but merely a difference in medium; that working in one, the artist leaves a monument in eternal bronze and in the other, a hundred thousand plastic replicas. Whistler's "Mother" may have been created with no thought of duplication, but "September Morn" more consciously began the long day of mass reproductions. Much of the effect which science has had upon art is due probably to this possibility of quantity production.

Within science, on the other hand, some differentiation should be made as, for example, science, first, as a manner of thought and a method of attack; second, as a rapidly growing body of knowledge; and third, as the basis of the engineering arts through which it supplies the products and facilities of our material civilization. Let me emphasize those aspects of science: its methods; its data, laws, and working hypotheses; and, last, its engineering applications.

Stripped to essentials, what we glibly call the method of science is a process of controlled experimentation whereby can be derived a quantitative relationship between the variables in a physical phenomenon; to relate, for example, as Galileo was the first to do, the distance through which a body will fall and the time during which it falls. The experimenter varies only one condition at a time in order to be able to say: "Other things being equal," a change of so much produces such an amount of effect. Only under those conditions does he assume to draw a valid conclusion. In most of the experiments of modern science the expensive, time-consuming task is this elimination of any irrelevant and uncontrolled factors.

When the extraneous factors are too numerous or difficult, the control takes a different form, and the conclusion is drawn statistically. That is the guinea-pig variation of the scientific method, the one employed in physiological experiment when a group is divided into halves, one of which is treated and the other left untreated as a control. In such experiments not only must precautions be taken that other things remain equal for the two groups but the results must be interpreted with more than a casual knowledge of the mathematical theories of statistics. This is a method which is being adopted by business, for example, by some national advertisers. Several variations of the same ad-

vertising copy are prepared, and each is tried out in a different city. When the sales returns are in, the copy with the greatest appeal stands out statistically: The guinea pigs have done their work, and the copy they have selected is then employed in a national campaign.

Business is obviously willing to adopt the scientific method, at least when profit is in sight, but there is little evidence that art even knows of the method. My own pet peeve is the musical critic who makes positive statements about the relative tonal qualities of two performers heard at different times in different auditoriums. There are so many variables that other things are not equal in the two situations. In any auditorium the listener's position is very important; the size of the audience, the humidity, and the temperature also have effect, a complicated effect, upon the relative strength of the various component tones in a complex musical sound. Add to those variables the acoustic differences of auditoriums and then remember that one's hearing is not constant in acuity but varies somewhat from time to time. More important is the fact that one can be quite deaf to a whole range of tones and never realize it until subjected to a scientific hearing test. I would be willing to arrange for testing the hearing of the accredited musical critics of Boston or New York without expense to them if they would agree to publish the results in their own columns. On the other hand, of course, criticism is not a scientific evaluation; it is individual opinion, preference, or prejudice, of interest primarily for its style rather than for the measurements it implies. Dismiss it as a form of art and as yet uninfluenced by the scientific method. However that may be, science as a manner of thought has little effect, if any, upon art with a capital A, the art which is concerned with unique products.

That is not true of art which feeds the machine. The machine, which some fear as the Frankenstein of science, then takes command. Usually when an industrial artist designs for the machine, he must coöperate with engineers and is thus exposed to the scientific method. How far that method is applied depends, of course, upon the thing which is being designed. A pattern for textiles, all so-called novelties, most containers, the boxes and bottles which lure purchasers, consoles for radio sets, cabinets of metal to inclose oil burners or refrigerating units, and a myriad of other products reproduced by the machine — none of these requires of its artist even a vague sympathy for scientific method. When, however, the product is itself a machine, an electric razor or a vacuum cleaner, a telephone set, or the body of a motorcar, then appearance must be subordinate to function. The razor must be designed for the hand; the vacuum cleaner to be shoved under chairs and into corners; in the telephone handset the distance from mouthpiece to earpiece and their angles must suit the human physiognomy; and the motorcar should at least let the driver see street signs in front of him and cars that are running up his back. Something must be known about each variable — electrical, mechanical, or artistic — which enters into the design. Function, reliability, useful life, accessibility for maintenance and appearance, all these requirements of the customer are implicit functions of many variables. And so is the requirement

peculiar to the producer, that is, economy of manufacture both in process and in raw materials.

The extent to which the industrial artist brings the scientific method to bear upon his coördinate portion of a design problem depends also upon the extent to which the company for which he designs has itself a scientific attitude. If that attitude permeates the organization and is held by the businessmen at its top, the artist will have to yield to it. He will work with engineers, and their standards and something of their methods will be adopted by him to the enrichment of his own. If the company is not one that is constantly trying to bring under scientific control more and more of its products, its processes, and operations, then whim and hunch, however disguised or rationalized, may dictate choice. Appearance design will be considered for itself or, rather, for its effect on sales, and the artist will be unmitigated by engineering contacts. It then doesn't matter if appearance hides faulty design because next year there will be advertised another model, perhaps one technically improved on the basis of squeaks from customers but perhaps merely a more pleasing package.

When the artist thus serves industry as a beauty parlor attendant, to impart a bloom to its products, there is no chance for the scientific method to affect art. But when artist and engineer coöperate in a scientifically minded industry, there is an impact, and the reaction can be observed. In those industries the design engineers, mechanical and electrical, are quickened into an artistic consciousness. To their technical criteria they add those of art. The operation is one of addition not of alteration, for neither art nor science sacrifices or modifies its attitude. Each is broadened by an appreciation of the standards and methods of the other.

Such a combination of art and science is not a new phenomenon. We have had it for years in architecture. It is illustrated in the personnel of the latter's successful firms. In addition to those very necessary members who are business getters, the staff will include others whose aptitudes and interests occupy individual positions in the range from artist to engineer. This corresponds to the situation in the chemical, mechanical, or electrical industries where the staff may vary from the pure scientist to the most practical inventor or manipulator. Go beyond the front offices of the well-known industrial artists of the day and you will find mechanical and electrical engineers, who have a sense for form and color, working side by side with architects and art school graduates.

The rapid growth and popularity of the industrial artist is a response to a need of modern industry which he was quick to sense and to exploit. As applied science cheapened manufacture and increased the productivity of a man-hour, beauty could be added to utility at negligible increase in cost. The possibilities were advertised by the graphic arts through their manifold reproductions of the more expensive beauty of the days of craftsmanship. And in stepped the industrial artist, sometimes, I think, to get away with murder. He came as an individual, for his well-balanced staff did not evolve until his profits and enlarged sphere warranted. He has performed a socially valuable service but more, I believe, as a catalyzer than as a reagent. In his own

office he employs today the same type of engineer as was to have been found in the employ of many of the companies which turned to him as consultant. His coming freed these men to artistic expression, and his appraisal as consultant gives authority to many a design that would formerly have struggled in vain for executive approval. To businessmen he has been an education; to many of their design engineers, a stimulus and a release. As a consultant he reports on a different level in the organization, and therein hides some injustice and some occasion for jealousy. Of the latter, however, there is singularly little, I believe, on the part of engineers. What jealousy his rise involves is probably a two-way affair with architects, since their fields overlap and architects have long held uncontested the position of artistic counselors for business. A gasoline filling station, for example, is a design to be reproduced in quantity. Is it a job for architect or industrial artist? In whatever way they may reconcile their competitive differences, the fact remains that both are on the front line of the battle with ugliness. In the World's Fair in New York you will find their products side by side.

Ultimately, of course, the industrial artist is likely to work himself out of his job. Concerned as he is with designs for quantity production, his successors will be the employees and not the retained consultants of large businesses. Ultimately, also, technical schools may evolve, through electives, a course of training somewhat analogous to that for architects, which will develop instead of arrest the artistic tendencies of those engineers who happen to possess them. Architects, on the other hand, occupy as consultants a position fortified by tradition and further protected by the fact that buildings are individual and occasional. Hence few industrial companies would have the continuity of building to justify adequate architectural departments.

Turning now to the second aspect of science, its laws and data, there is little reason to expect much effect on the attitudes and principles which we include under the term art. Upon artists their effect is probably the same as upon laymen in general. The laws of science, when known, are accepted like the calendar—an inevitability for which one must allow. The data are accepted uncritically, utilized when need and knowledge happen to be contemporaneous, but frequently misinterpreted. New theories when well publicized have their moments of attention, as do striking data on extremes of magnitude, but pass into the forgotten with most of the miscellaneous news of the day. All in all, I am afraid, the scientific knowledge of the artist, even more than of most men, is a hodgepodge of fact and fancy. He has a vague respect for science, credits it with much of the world in which he lives, but belittles and sometimes fears its possible effects upon his art. Like his fellow in other nonscientific work, science stands for the all-possible: "Well don't you think someone will discover a way to do it someday?" On the whole science is a friendly and serviceable jinni; one never knows what it will draw out of the clear.

Except in those occasions, infrequent and usually youthful, when the artist reacts violently against his environment, he accepts, like the rest of us, the facilities which applied science provides: the rapidity and ease of

transportation, whether of goods, men, or ideas; all the creature comforts of protection from the elements; and the conveniences of controllable sources of light, heat, and power. Like the rest of us, his life is conditioned by machines which gradually but inevitably affect emotion and thought on matters social or political and religious, philosophic or artistic.

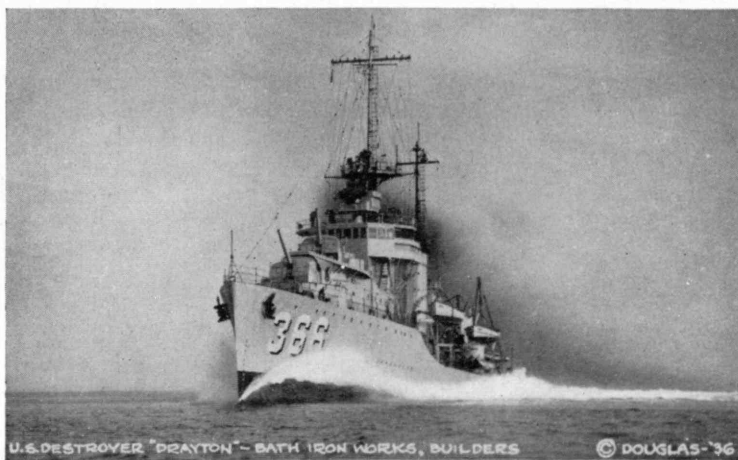
And so we come to the impact upon art of science in its third aspect, the facilities provided through the engineering arts. And here I may do an injustice to science or art, one or both. Imagine the artists of a primitive people. Their art cannot exceed their experiences nor can it be produced in mediums not available in their surroundings and their technological state. Through slow and uncontested migration they reach a new area, richer in the materials of art; new colors and new mediums are available; and new forms are suggested by their surroundings — snow-clad peaks, deep gorges, lush valleys but stunted trees around their rim — a different face to nature. Their art in time will utilize the new materials and reflect the new environment. That, to my mind, is about what has happened to art through the applications of science. There are more materials at its disposal, new objects to adopt into its symbolism, and strange activities to be reflected by the observant artist. Above all there are new habits to be formed and new rituals to be met, but these they share in common with the inartistic.

The architect some years ago began to build in steel, long after steel became one of the mediums available. Was it his art and aspirations that carried structures

higher and made walls thinner? Or was it because of ground rents and the congestion which elevators and telephones made possible and profitable? He supplemented with reinforced concrete, an environmental necessity in a country rapidly denuded of its forests. New art forms, however, did arise from new materials. Today, it would seem, the course of his experimentation is accelerated — consistent, I imagine, with the world pace — as more and more new materials stream from manufacturers' laboratories. In considering new materials, architects are relatively prompt, but then architecture is as much a useful art as it is a fine art, and the architect is part engineer, anyway.

Music furnishes another illustration of new instrumentalities made possible by applied science. But the illustration is essentially negative since so far the effect of radio broadcasting, sound motion pictures, and improved phonographs seems to be an economic one on musicians rather than upon their art. Greater rewards and larger audiences for the more successful, at least. More recently there have come from the laboratories, although still waiting commercial utilization, developments of greater significance to the art. First there is the possibility of picking up any musical sound whatsoever, transmitting it and reproducing it with no loss that normal ears can detect. Impending — for the techniques are available — is the possibility of synthesizing various electrical currents to produce new complexes of tone beyond the limited capabilities of standard musical instruments.

(Concluded on page 430)



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ENGINEERING AND ART

(Concluded from page 429)

But, to my mind, of transcending importance to the art is the present technology of sound measurement. Any tonal complex, vocal, instrumental, or combined, can be analyzed and quantitatively expressed in the objective terminology of physics. Furthermore, any desired element in the complex can be controlled and varied by known amount — other things still remaining equal — so that, today, exact correlations can be established between physical characteristics and esthetic satisfaction. There could be determined statistically, for example, with the coöperation of a guinea-pig audience of music lovers and critics, just what pitch modulation occurs in the best-liked vibrato; how that relationship differs from one source to another, as from string to voice; and what deviations from the optimum avoid monotony without loss of esthetic approval. The scientific method can now be applied to music whenever its professors and devotees wish to undertake the research.

Music illustrates the future effect upon art of new scientific techniques, whereas architecture illustrates the continuing effect of new materials. Painting, on the other hand, and its teeming sisters of the graphic arts, illustrate the adoption of new objects into symbolism. For the last 15 years I happen to have been so placed that occasionally artists have consulted me, seeking material to use in symbolic presentations, usually murals. Some have made use of the stuff I gave them, but the first man of the lot — one who had accepted a commission for a series of murals to symbolize physical research — saw me several times, got nowhere with his task, and finally, I understand, went insane. I had taken him to visit important laboratories, showed him pictures of dozens of other laboratories, and attempted to give him verbally, in simple abstract terms, a concept of scientific research. Remember, however, that the bearded astrologer in long robe, with astrolabe and abacus and a crook-necked flask steaming on his fire, is an obsolete, outmoded symbol. There are no symbols adequate and accepted for modern research.

On the other hand, I had a much easier time but no more success with a young man who was connected with a foreign telephone company. He wanted to symbolize modern telephony. To do that he had to make his panel convey the idea of two-way communication, oral but private, between persons in pairs — between any two persons, anywhere and at any time, and for almost innumerable pairs at the same time. Try it on your own sketch pad some rainy afternoon. Faced with what seemed to me a present-day insuperability, unless one wished to append to the panel a glossary of unsanctioned symbols, I tried to persuade him to attempt the easier task of one-way communication — the broadcast of a single speaker to widely scattered listeners. Almost any latticed tower with a little house at its foot will stand today for a radio station; a blob on a pedestal about mouth high, for a microphone; and a small box, particularly if a circle is drawn on one side, for a radio receiver. These three symbols are being accepted; any one of them alone serves the purpose; and they all illustrate the adaptation to art of the new environment.

In literature and especially in drama we find reflections by the observant of new activities which the engineering arts have made habitual. When Babbitt drove down town he raced the street cars for the crossings. The dynamo of Eugene O'Neill, the fantastic machine of the last Charlie Chaplin film, the operating table of "Men in White." A play doesn't have to be produced by Norman Bel Geddes to have a background of structural steel and cranes: There was symbolism in the unset stage of "The Cradle Will Rock." The machines of today are prominent in the material and symbolism of literature. "Factory windows are always broken": Poetry also derives from its present. Not only the instrumentalities but also the facts of science are utilized in literature. One can hardly read a new detective story without acquiring unimportant data of science. What Freud started in the terminology of the unconscious has served many a novelist in good stead. To literature, science contributes facts, laws, and theories; but I do not see that they have had more than a surface effect upon the art itself. Even in sales this new material cannot always compete with the setting of the Civil War or with modern variants of the adventures of Odysseus.

Dominant over all in its effects upon the fine arts, it seems to me, is the tempo of our times — what Walter Gropius has called "the rush and convulsion of our mechanical age." To this tempo the machine of applied science has contributed, but the machine is far from uniquely to blame.

TECHNOLOGY AND LETTERS

(Continued from page 413)

population, they worked from dawn to dark — from kin-see to caint-see, as they still say in Georgia. Most of them were illiterate, and the others had neither money to buy books nor time to read them. As late as the 16th Century 30 persons in the rural districts are said to have been necessary in order to support one person in the city. Today one farmer raises food enough for five city people, besides his own family, and with an unusable surplus that has to be burned or dumped into the harbor. Applied science has set in motion the forces that have changed the peasants into proletarians. It has decreased their working hours by a third and even by a half. It has given them money — though not much — and a free education and a great thirst for entertainment and self-improvement. In a word, it has transformed them into the mass audience that is slowly replacing the class audience of the 18th Century. But applied science has also created new methods of reaching this audience. Photography and photoengraving, phonographic recording, motion pictures and talking pictures, radio, television — all these inventions, and many more besides, are being used to convey facts, ideas, and emotions that used to be conveyed by the printed word. I doubt that their effect on literature will be so immediate or so catastrophic as Valéry suggests.

There are at least three reasons for this doubt. In the first place, there is always a time lag between the making of any basic invention (Continued on page 432)

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TECHNOLOGY AND LETTERS

(Continued from page 430)

and its commercial exploitation, and a further lag between its commercial exploitation and the period of its widest social effects. The first airplane flight was made by Clément Ader in 1890 or by the Wright brothers in 1903 — depending on whether you consult a French or an American encyclopedia — but aviation stocks reached a peak in 1929, and the age of the universal family plane is still in the future. For the full social effects of radio or television, the world may have to wait a hundred years.

In the second place, such inventions are not only a possible threat to literature but also an opportunity for the development of new literary forms, for example, the poetic play to be performed over the radio, or the poem that accompanies a collection of photographs, or the poetic text that comments on a movie. Of these three forms, the first two were developed by Archibald MacLeish in "The Fall of the City" and "Land of the Free." The third was admirably practised by Pare Lorentz in his text for "The River." The road is open to further experiments, some of which, I am sure, will become a part of our literary tradition.

And the existence of such experiments suggests another reason why applied science is less of a danger to literature than M. Valéry seems to believe. Phonograph records, talkies, radio plays are not really rivals and competitors of literature. If well done, they are part of literature. They are competitors merely of the written word. And they are competitors that labor under certain disadvantages. They demand listeners instead of readers, and listening takes more time than reading. A 10,000-word lecture, which takes at least an hour to deliver, could be read in 30 minutes or less. It could be sampled in two minutes, and then dropped if it didn't interest you — whereas you are polite enough to sit to the end of a lecture, no matter how much it hurts. You aren't polite to the radio — when anything bores you too much you twirl the little knob — but you have your choice of only 20 or 30 stations, not one of which may carry the program you want to hear, whereas in a good library you have your choice of a million books. This element of choice is one of the reasons why literature is so popular in a democracy, and the absence of this element explains why radios are popular with European dictators. When Hitler makes a speech, he tells 75,000,000 Germans to listen to their radios or go to jail. And there isn't any other program.

Radios can be used to stimulate people emotionally, to whip them into a frenzy, but the best method of conveying and preserving ideas is still the written word. The fact is that movie dramas and radio sketches first exist as written words, as "scripts," to use the technical term. The scripts continue to exist after the performance has been forgotten; often they are taken out of the filing cabinets and made into new dramas and new sketches. "In the beginning was the word"; and usually it is the word that survives. The technological improvement that would revolutionize literature — and public life as well — is the invention of new words that would serve as more exact and efficient means of communica-



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tion. We need to know what is really meant by terms like "fascism," "communism," "democracy," "subversive," "free enterprise," "the American way," and a thousand others that are repeated confidently from platforms and over the radio. The same sort of talent needs to be applied to the problem of speech which has already been applied to mechanical problems. And I suggest, too, that the inventions with the greatest effect on literature are rather old inventions: the alphabet, which we owe to the Phoenicians; paper and ink, which we owe to Egypt; then printing with movable type, which we owe to Germany; and finally a whole series of 19th Century inventions and improvements — linotyping, photoengraving, high-speed presses, and cheap methods of manufacturing paper. Their full effect is still to be exerted. As a result of their intensive exploitation — and also as a result of the new audience, to which I have referred already — book publishing is likely to be transformed into a mass industry, and the authors of books are likely to be placed in a new relation to the public.

Book publishing is certainly not a mass industry at present. Whereas a popular movie may be seen by 30,000,000 people — or even more — and a popular magazine may be bought by 3,000,000, a book is thought to be enormously successful if it has a sale of 300,000. Thirty thousand will put it among the six best sellers, and even 3,000 is better than the average and yields a slight profit to the publisher. An economic survey of the book industry made by O. H. Cheney in 1930 showed that the retail sale of books corresponded strikingly in the various states with that of automobiles costing more than \$1,000 and also with the retail sales of the so-called luxury goods — flowers, lamp shades, jewelry, pianos, perfumes, sporting goods, cameras. In other words, book publishing since the War and even during the depression has been one of the luxury trades.

What are the characteristics of such a trade? First and foremost, it is directed toward a small public of relatively prosperous people. The limited size of the present book-buying public is shown by the fact that there are only 800 active bookstores in the country. Some 250 of these do 85 per cent of the business — and they are concentrated in the big cities, along with the big money. The next characteristic of a luxury trade is that the appeal made to its customers is that of novelty and exclusiveness — the snob appeal. Fashions in books are changed as frequently as fashions in women's clothes. Novels have an active sales life of six months in exceptional cases; more often it is three months, one month, even a fortnight. At the end of this period new novels crowd them out. The successful book of yesterday is forgotten for a while; then it reappears in a cheap edition or is remaindered in the corner drugstores. A third characteristic of a luxury trade is its high prices, explained by the fact that a high percentage of profit is necessary to compensate for the lack of volume. Thus, a novel which can be manufactured for as little as 20 cents — after the cost of setting it in type has been charged off — and which pays its author a royalty of from 25 to 37½ cents a copy, making a total manufacturing cost of about 60 cents, exclusive of advertising and overhead, will be sold whole- (Concluded on page 434)



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Craft

TECHNOLOGY AND LETTERS

(Concluded from page 433)

sale to the bookstores for \$1.50 and retail to the public for \$2.50. Yet because of the disorganization in the publishing industry and the small scale on which the industry does business, the author may not earn a living wage, nor the publisher a return on his investment; and the bookstore is likely to go bankrupt.

It seems to me now that the best books for distribution to a mass audience are those that have already been published, reviewed, advertised, and talked about, so that their popular appeal is beyond question. Such books can then be republished at a very low price and distributed through retail outlets that never handled a book before. There has been one strikingly successful experiment in that direction — Triangle Books.

The publisher, Eugene Reynal, writes me as follows:

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Some of these books had previously appeared in a 75-cent reprint edition. We have to sell five times as many copies in the Triangle edition at 39 cents to give the author and the publisher the same revenue. Current estimates look as if we would sell ten times as many in the first year, and on the older books often as much as 50 times as many. . . . It is obvious that no such plan as this gives the complete answer to wide distribution of books throughout the country, but for certain types of books — and you will agree that Pearl Buck would come in the highest category — it looks as if we might get a circulation comparable to some of the popular magazines.

In these cold facts there is fuel and a spark to fire the imagination. When the sale of good books is multiplied by 10, 20, or even 50, we can be sure that they are reaching an entirely new audience. We can be sure that the members of this audience will have their conception of life recast and recolored by their reading. And we can also be sure that literature itself, and the men who produce it, will undergo some profound changes. Will these be for the better or the worse? I think the answer to that question depends partly on the writers themselves. If they despise the crowd, if they write down to it, if they merely simplify and vulgarize the old literature that was written for a class audience, then the changes will be for the worse. But crowds have a force and vitality of their own and are able to inspire the people who address them. The changes will be for the better if writers are able and willing to take advantage of their new opportunity.

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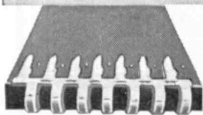
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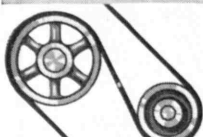
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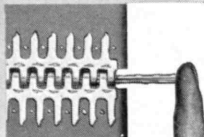
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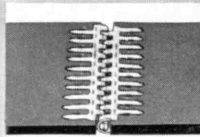
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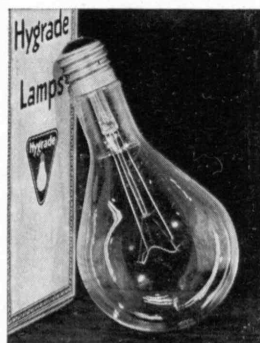
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FAREWELL TO ROGERS

(Continued from page 414)

institution comprehending the whole field of physical science and the arts with the auxiliary branches of the mathematics and modern languages, and would soon overtop the universities of the land in the accuracy and the extent of its teachings in all branches of positive knowledge."

This extraordinary memorandum was, please remember, drawn up nearly a year before the Lawrence Scientific School and the Sheffield Scientific School were founded in 1847.

In 1849 William Barton Rogers married Emma Savage, a descendant of Major Thomas Savage, and four years later he moved to Boston, doing consulting and lecturing work and shaping plans, with his brother, until Henry's untimely death in 1866, for the realization of his dreams for scientific education.

In 1860, in the midst of the intellectual stimulus of Darwinism and the rumbling political storms of secession, he prepared a memorial to the legislature in behalf of a grant of newly made lands in the Back Bay for a group of institutions dealing with science and the arts. In January, 1861, this plan was endorsed at a mass meeting, and a strong committee formed to further its realization. On April 10, 1861, two days before the fall of Fort Sumter, the Institute of Technology was incorporated, to include a society of arts, a museum of arts, and a school of industrial science. In 1862, Rogers was named president of the Institute, and the Society of Arts was organized. In 1863 the development of Rogers' program was made possible by the allotment of three-tenths of the state grant from the sale of Federal lands and by a generous pledge of \$100,000 from William J. Walker. The first classes of the Institute met in temporary quarters on Summer Street, February 20, 1865. Rogers says in his diary: "Organized the School. Fifteen students entered. May not this prove a memorable day!" The first regular session opened on October 2, 1865, with 70 students registered. The dream of 1846 had become a reality.

Rogers became seriously ill in 1868 and resigned in 1870, Professor John D. Runkle taking his place. In 1878 his health being somewhat restored, he was persuaded in a moment of serious crisis to resume the presidency; and having surmounted the difficulties of the moment, he installed Francis Amasa Walker as his successor in 1881. Rogers died, under circumstances to which we shall recur in a moment, in 1882. The feeling of the men he had gathered about him in this great pioneer enterprise was expressed by the Faculty on the occasion of his first resignation as follows: The minute says: "We shall miss the comprehensive wisdom that planned the undertaking, the patience that was always ready to meet the unforeseen difficulties of a new task, the buoyant and hopeful spirit that vanquished all obstacles, and could not recognize the possibility of failure; we shall miss the breadth of scientific attainment which made you equally at home in all our labours, and qualified you to be the wise and enlightened counsellor of us all; but most of all we shall miss your personal presence among us, the presence of one whose words were always

words of wisdom, and who was not more our honoured President than he was our valued and respected friend."

The work of William Barton Rogers was in very special degree connected with this building in which we are gathered and which, since his death, has borne his name. The realization of his vision of an institute of technology was made possible by the grant of the new-made land upon which the building stands. This is sacred soil to all who believe in the importance of science. The building itself, begun in 1863, was the first tangible evidence of achievement. From 1865 until 1916 every student of the Institute crossed its threshold almost daily. Nearly 50 successive classes gathered in this hall as freshmen and on this platform received the diplomas which sent them out into the world to carry the gospel of science into all lands for the upbuilding of the material welfare of mankind. This is a hallowed spot to all who believe in the values of scientific education.

Finally, upon this platform there came with dramatic fitness the close of the life which made this building and this school a possibility. At the Commencement exercises on May 30, 1882, Rogers, who occupied a place beside President Walker on the platform, was called upon to speak. As described by Walker: "His voice was at first weak and faltering, but, as was his wont, he gathered inspiration from his theme, and for the moment his voice rang out in its full volume and those well-remembered, most thrilling tones. Then, of a sudden, there was silence in the midst of speech; that stately figure suddenly drooped; the fire died out of that eye ever so quick to kindle at noble thoughts; and, before one of his attentive listeners had time to suspect the cause, he fell to the platform instantly dead."

William Barton Rogers died more than half a century ago; and the Rogers Building which has commemorated his name is now to be torn down. The ideals for which he strove, the ideals for which this building has stood, are of more lasting stuff. It is these ideals which should chiefly concern us today. The novelty of Rogers' achievement is not easy for us to realize, so rapid and so complete has been the triumph of the scientific spirit in this modern age. Colonel Theodore Lyman, in a commemorative address on Rogers, said: "Easy now is the path of the student, his early steps steadied by strong hands and cheered by encouraging tones. It was not so when our friend first opened his mind to the study of nature. A few men in his native Philadelphia were groping in the twilight of early discovery, or were striving to get in fit order ascertained facts: masters and laboratories and instructors, all were wanting. Plainly, then, the man who could take up such a pursuit must have been a man of originality and power."

James P. Munroe, '82, in his memoir of Rogers, says: "His greater service was in showing that the laboratory method is the basic means of all true teaching and in forcing the colleges, the high schools, the whole teaching hierarchy slowly to accept this truth. The change has come about so gradually as to make it hard to realize that, whether in the primary school or in the university, the attitude of the teacher towards his pupil, of the pupil towards his work, of the public towards the means and ends of education, is enormously different from that of 40 years ago. Then education (*Continued on page 438*)



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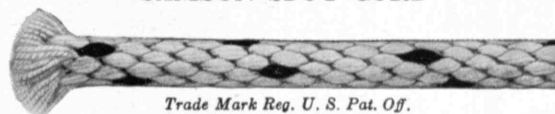
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FAREWELL TO ROGERS

(Continued from page 437)

was receptive, today it is creative; then the pupil was to be instructed, today he is to be developed; then the important element was the lesson learned, today it is the student learning. What the seers in education had been vainly preaching for centuries is meeting general acceptance only in the last 50 years. That this right view is so rapidly prevailing is because of the development, in the broad meaning of the term, of the teaching laboratory."

The spirit behind the laboratory is, however, even more important than its value as a teaching method. Rogers, in his 1846 memorandum, says: "The true and only practicable object of a polytechnic school is, as I conceive, the teaching, not of the minute details and manipulations of the arts, which can be done only in the workshop, but the inculcation of those scientific principles which form the basis and explanation of them, and along with this a full and methodical review of all their leading processes and operations in connection with physical laws."

The spirit of science, as I see it, involves two fundamental attitudes, and those two attitudes may be characterized by the terms humility and faith. By humility I mean realization of the fact that we live in a universe of laws and that progress — even survival — is only attainable by conformity to those laws. A truism, perhaps. When someone told Carlyle that Margaret Fuller

was a great woman because "she accepts the universe," the old man growled, "God, she'd better." Yet the world is today full of people and of nations who refuse to accept the universe, who believe that that universe can be turned inside out and upside down by such figments of the imagination as "the Nordic inheritance" and "the German will."

The second fundamental attitude of the scientist is faith — faith that by learning how the laws of nature work, rather than by defying them, those laws can be molded to the uses and the purposes of man. "Ye shall know the truth, and the truth shall make you free." In the past century the whole physical background of human life has been transformed in the light of this doctrine. Comfort and ease and luxury have been brought within the potential reach of the peoples of the earth by applications of physics and chemistry and engineering, while hygiene and sanitation have lifted more than half of the burden of sickness and death from the shoulders of the human race.

In spite of these spectacular achievements the world of today is a troublous place in which to live, and by a curious perversion of the facts, the blame for its troubles is laid by some at the very door of science itself. It is true that scientific discovery has been used for evil purposes. Chemistry and aviation have made war more horrible; the automobile has helped gangsters, and the radio has assisted those large-scale gangsters called dictators. The instruments of (Concluded on page 440)

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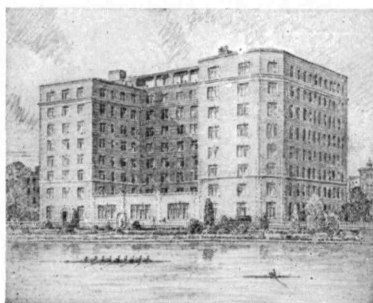
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FAREWELL TO ROGERS

(Concluded from page 438)

science may indeed be terrible if used by those who lack the spirit of science, but the blame for this does not lie on us. It has been said that the cure for democracy is more democracy. I am not sure that that is true. I am certain, however, that the cure for the ills wrought in the name of science is more science.

What has been accomplished in physics and chemistry and engineering and sanitation must be duplicated in economics and sociology and psychology if civilization is to survive; and this can come only through the application to these more complex problems of the humility of science and the faith of science which have triumphed so greatly in the simpler fields of material welfare. We know today far more about the economics of national planning and the emotional forces which motivate human conduct than William Barton Rogers knew about wave mechanics or physical chemistry or bacteriology. If he stood on this platform today I think he might say to us: "The dreams which I dreamed in Virginia a century ago have more than come true. The physical and the physiological scientist have transformed the earth. The energies of the oil bed and the waterfall have been harnessed. The machine has multiplied man's strength a hundredfold. The air and the water have been conquered, and the automobile, the telegraph, and the radio have almost abolished the barriers of space. Plague, pestilence, and famine have been banished, or can be banished, from the earth. Your problems are new problems which concern the relations between man and man, between nation and nation. You are like a band of explorers who have wandered long in the wilderness and have come out at last into a land of richness — which they cannot yet enjoy because they are quarreling about the division of the spoil. Yet the springs of human conduct — and misconduct — follow laws as do the phenomena of hydraulics and electrochemistry. If you will approach them with the honest humility of the laboratory, and the soaring faith of the laboratory, you will succeed in these fields as we have done in ours."

That is, I think, the message of the Rogers Building to the world of 1938; and it is a message which will continue to echo down the ages when the stones of this edifice have crumbled into dust.

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(Concluded from page 410)

matters, Mr. Burchard was actively in charge of the research and patent work connected with such projects and collaborated with Mr. Bemis in writing parts of "The Evolving House." Meanwhile, through many writings on the subject, which have been published in all the major architectural journals both here and abroad, and through papers given before American professional societies, he has established himself as a clear and logical thinker in the field of housing. Alumni will recall that he was one of the four speakers at Technology's Housing Conference a year ago. Mr. Burchard will enjoy the advantage in the new post of having once before been a member of the Institute staff and of having maintained an active interest in the Institute and a wide acquaintance among its staff during the interim years.

The general program for the foundation will include: (1) coordination of existing knowledge and research in materials, construction methods, and the economics of shelter; (2) stimulation and planning of research in various phases of the building industry; (3) dissemination of information on its various activities for the greatest benefit of the public and the building industry in addition to participation in the general educational program of the Institute, as has already been mentioned.

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In addition to the consulting service previously mentioned, the foundation contemplates the publication of the results of its activities at such times and in such forms as will be of greatest assistance to the public and to industry, but it is not committed to any formal or definitely periodic publication policy. Thus in another field of great social significance the Institute prepares to make its contributions in those spheres in which it is best fitted to contribute.

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PLACEMENT STATUS
of
1938 GRADUATES

The results of a recent employment survey of the Class of 1938 are shown in the table below:

EMPLOYMENT STATUS	<i>June Doctor's Degree</i>		<i>June Master's Degree</i>		<i>June Bachelor's Degree</i>		<i>Fall Degrees</i>		<i>All Groups</i>	
1938 GRADUATES as of June 6, 1938	No.	%	No.	%	No.	%	No.	%	No.	%
1. Placed	39	81	102	66	139	40	79	77	359	55
2. Plan further study	2	4	2	1	42	12	8	8	54	8
Total of 1 and 2	41	85	104	67	181	52	87	85	413	63
Unclassified	7	15	52	33	164	48	15	15	238	37
TOTALS	48	100	156	100	345	100	102	100	651	100

PLACEMENT BUREAU

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CAMBRIDGE, MASS.

AN AID TO ALUMNI IN FINDING DESIRABLE POSITIONS

TECHNOLOGY MEN IN ACTION

CHECK LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

Plaudits

¶ For WILLIS R. WHITNEY '90, Non-resident Professor of Chemical Research, on receiving the Marcellus Hartley Public Welfare Medal of the National Academy of Sciences, in April.

¶ For FREDERIC L. BISHOP '98, Professor of Physics, University of Pittsburgh, upon receiving an honorary doctor of science degree from the University of Pittsburgh, on June 8.

¶ For RUFUS E. ZIMMERMAN '11, a Vice-President of the United States Steel Corporation, upon receiving an honorary doctor of science degree from Franklin and Marshall College on June 1. Last January Mr. Zimmerman was appointed a director, member of the executive committee, and vice-president in charge of research and technology of the United States Steel Corporation of Delaware.

¶ For ROGER WILLIAMS '14, chemical director, ammonia department, E. I. du Pont de Nemours and Company, upon receiving an honorary degree of doctor of science from West Virginia University, June 7.

¶ For JAMES A. TOBEY '15, director, American Institute of Baking, upon receiving an honorary degree of doctor of laws from Southeastern University, June 7.

¶ For ARTHUR C. HARDY '18, Professor of Optics and Photography, upon receiving an honorary doctor of science degree from St. Lawrence University on June 13. This degree was conferred for Dr. Hardy's "distinct contribution to education as a physicist, author, and inventor."

¶ For GILBERT N. LEWIS, Former Staff, upon receiving the Theodore William Richards Medal of the Northeastern Section, American Chemical Society, May 13.

A.S.T.M., Technology View

¶ At the 41st annual meeting of the American Society for Testing Materials, held at Atlantic City, N.J., June 27 to July 1, 14 Technology men took part. Probably the most outstanding was ALBERT SAUVEUR '89, who delivered the Edgar Marburg lecture, "The Torsion Test." Others participating follow: T. H. WIGGIN '95, "Report of Sectional Com-

mittee A-21 on Specifications for Cast-Iron Pipe and Special Castings"; HERBERT J. BALL '06, "Report of Committee D-13 on Textile Materials"; THOMAS SPOONER '09, "Report of Committee A-6 on Magnetic Properties"; HARRY P. TREVITHICK '09, "Report of Committee D-12 on Soaps and Detergents"; JOHN B. ROMER '11, with W. W. Cerna and H. F. Hannum, "The Determination of Sodium in Water Supplies by an Indirect Method"; FREDERICK H. NORTON '18, "Progress Report on Creep Tests of Tubular Members Subjected to Internal Pressure"; JOHN T. NORTON '18, "Report of Committee E-4 on Metallography"; WILLIAM H. BASSETT, Jr., '19, "Report of Committee B-1 on Copper and Copper Alloy Wire for Electrical Conductors"; SILVIO C. MASSARI '24, "The Properties and Uses of Chilled Iron"; GILES E. HOPKINS '26, "Progress in Wool Standardization"; ROBERT W. CLYNE '30, with D. J. McAdam, Jr., "The Theory of Impact Testing: Influence of Temperature, Velocity of Deformation, and Form and Size of Specimen on Work of Deformation"; GERARD E. CLAUSSEN '31, with W. Spraragen, "Critical Review of Literature on Weld Impact Testing"; ROY W. CARLSON '37 "The Drying Shrinkage of Concrete as Affected by Many Factors."

Almost Half the Ballot

¶ Of the 20 names presented in *The Nucleus* of May as nominees for office in the Northeastern Section, American Chemical Society, for 1938-1939, nine have Technology connections: ARTHUR A. BLANCHARD '98, FRANK C. HOWARD '17, JOHN J. HEALY, Jr., '21, and AVERY A. ASHDOWN '24 for national councilors; EDWARD O. HOLMES '16 and GEORGE SCATCHARD, Staff, for committee on the awarding of the Richards Medal; KENNETH E. BELL '17 for board of publications; ERNEST H. HUNTRESS '20 for chairman; and ARTHUR R. DAVIS, Staff, for Secretary.

Written

¶ By HALE SUTHERLAND '10 and H. L. BOWMAN '14, "Structural Design," John Wiley. Reading this material in the manuscript form, one reviewer

wrote: "The manuscript is . . . thoroughly scholarly and I am sure quite teachable. It will be a welcomed addition to their previous volumes. . . . The selection of material is good and the arrangement I believe to be excellent."

¶ By ERWIN H. SCHELL '12, "Current Certainties in a Time of Low Visibility," *American Gas Journal*, March. In this short article, Professor Schell, who is in charge of our Department of Business and Engineering Administration, mentions five certainties: ". . . We are in the presence of constant and relatively rapid change. . . . Human wants are increasing both in variety and intensity at an unprecedented rate. . . . Organized research has become the dominant competitive weapon for the individual establishment. . . . Major resource is increasingly to be found in the good will of vendor and of customer, of community and of the public, as well as of stockholder and of employee. . . . Industry as it is now constituted and is now evolving must and surely will go on."

¶ By JOSEPH L. FINCK '15, "On Physico-Chemical States of Equilibrium," *Journal of the Franklin Institute*, April. This paper is concerned principally with the law of mass action and the equation of state in a "critical study of some of the basic assumptions involved in considerations of thermodynamic equilibrium as applied to physico-chemical states."

¶ By VANNEVAR BUSH '16, "New Products for Industry," *Industry*, May. This was first delivered as a speech before the joint meeting of the Associated Industries of Massachusetts and the Employers' Association of Western Massachusetts on April 14. This article is "a plea to industrialists to become more truly acquainted with what research is all about, and to lend their support to its general furtherance."

¶ By A. RAYMOND BROOKS '17, "Flying Laboratories," *Bell Telephone Quarterly*, April. Captain Brooks "has served for ten years as chief pilot and supervisor of the air operations group of the Bell Telephone Laboratories. From 1917 to 1922 he was in the United States Army Air Service,

and the single-seater pursuit plane which he used in France is now in the Smithsonian Institution in Washington, D.C."

¶ By BERNARD E. PROCTOR '23, "Food Technology Trends," *The Nucleus*, May, a publication of the Northeastern and Rhode Island Sections, American Chemical Society.

¶ By JOHN E. NICHOLAS '26, "The Warming of Milk in Transit," *Agricultural Engineering*, February. The author points out that observance of sanitary practices in and around the barn is not sufficient. The transportation conditions must also be of the best to keep milk from deteriorating.

¶ By GEOFFREY BROUGHTON '36 and EWART I. AKEROYD '37, "Alkali Adsorption by Synthetic Resins," *Journal of Physical Chemistry*, March.

¶ By ROBLEY D. EVANS, Staff, and ROBERT S. HARRIS '28, "Studies in Radium Poisoning: The Metabolic Effects of Ingested Radium in Rats," presented as a paper at the April meeting of the National Academy of Sciences and abstracted in *Science*, May 13.

¶ By ROBERT C. HOCKETT, Staff, and C. S. HUDSON, "The Amides and Phenylhydrazides of Two Epimeric (α, α and α, β)-*d*-Glucosaccharic Acids," *Journal of the American Chemical Society*, March.

¶ By ROBERT R. SHROCK, Staff, "Fossil Algae from the Salem Limestone of Indiana," in the "Discussion" section of *Science*, May 13. Dr. Shrock is expressing his agreement with a theory advanced in 1935 by Dr. Titus Ulke of Washington, D.C., concerning markings in the Salem limestone.

New Duties

¶ For THEODORE B. PARKER '11, appointed chief engineer for the Tennessee Valley Authority. Mr. Parker was connected with Stone and Webster for 11 years, served with the 26th Engineers during the War, spent a year as P.W.A. director in Massachusetts, and from 1935 until the present has been supervising construction engineer for the T.V.A.

¶ For LEWIS W. DOUGLAS '17, principal and vice-chancellor of McGill University and formerly director of the national budget under Roosevelt, added to board of directors of the National Life Insurance Company.

¶ For PAUL A. HEYMANS '23, named minister of the combined economic and agriculture department in the Belgian cabinet. Mr. Heymans is a Belgian by birth and in addition to studies at the University of Ghent has a doctorate from here.

¶ For HOWARD N. LARY '27, appointed a regional director of the Securities Exchange Commission to have jurisdiction over eight western states. Mr. Lary has been with the commission since 1935 and will have his headquarters in Denver, Colo.

Research Day in New England

¶ To celebrate this day, the New England Council and the Engineering Societies of New England jointly held a luncheon in Boston on May 20, at which KARL T. COMPTON spoke. We present a few excerpts from Dr. Compton's address: "We want our business and industrial enterprises to make profits, in order that wages can be paid, dividends declared, and new enterprises undertaken. . . . We want the highest possible standard of living distributed fairly among all the people. . . . Research is a powerful method of securing these advantages. It is not the only method, but it has three very important qualities: (1) its success has been demonstrated; (2) its results are permanent; (3) it creates new values in employment, products, and profits which did not exist before. It is a sad reflection on the intelligence and good sense of our people that it has not been more courageously pushed during the last few years when the need for its results has been so obvious. . . ."

DEATHS

* Mentioned in class notes.

¶ NATHANAEL G. HERRESHOFF '70, June 2. From the *Boston Transcript* of that date we quote: "Ill for a year, he had, until the illness began, retained all his faculties, showing his age only in that he was slightly hard of hearing, and still dabbled at what started as his hobby and became his profession. He was one of the greatest naval architects in the world. Swift, graceful racing yachts and fast torpedo boats turned out from his family's famous yards in Bristol [R.I.] made for 'Old Nat' Herreshoff a world-wide reputation.

"No man played a more important part in the America's Cup races. . . . But yachtsmen have scores of other reasons for remembering him. Captain Herreshoff contributed to efficient application of steam power in warships and commercial vessels. He gave the yachting world the 'fin keel' type of

racer, and at various times he virtually revolutionized yacht construction. From 1893 to 1920 he designed every defender of the America's Cup. Yet in 1922 when he was made an honorary member of the American Society of Mechanical Engineers, he was cited as 'a man who never patented an invention or design, but willingly gave them to the world. . . ."

"'Old Nat' was born to his profession, a descendant of Charles Frederick Herreshoff who emigrated from Germany in 1790 and married a daughter of John Brown, one of Rhode Island's largest ship owners. Since then the family has lived and worked near and on the sea. . . . Captain Herreshoff went from Bristol, where he was born March 18, 1848, to Massachusetts Institute of Technology where he studied from 1866 to 1869. He then worked in Providence but soon returned to Bristol and joined his brother John in the shipyard which the latter established in the '60s. He was superintendent of the plant from 1881 to 1915 and thereafter president until he retired in 1924."

The *Boston Traveler* of June 2 states that "his first wife, the former Clara A. De Wolf of Bristol, died in 1905. Ten years later he married Ann Roebuck, who survives him. He also leaves four sons, Alexander G. [12], a vice-president of Chrysler Corporation, Detroit; A. Sidney De W. [11], chief engineer of the Herreshoff Manufacturing Company; L. Francis, Marblehead (Mass.) yacht designer; and Clarence De W., connected with the United States navy bureau of construction and repair at Washington; a daughter, Agnes, with whom he lived, and four grandchildren."

¶ DAVID LORING '70, May 21.

¶ JOHN A. SEAVERS '84, May 30.

¶ WALTER C. GAGE '88, April 30.*

¶ HAROLD G. GROSS '88, October 28.*

¶ MARIE A. MOLINEUX '90, May 16.*

¶ ALBERT S. HEYWOOD '92, May 31.

¶ PERCY K. CROCKER '96, May 6.*

¶ FREDERICK W. CALDWELL '99, April 27.*

¶ FREDERICK L. HIGGINS '04, May 21.

¶ PAUL J. RALPH '05, April 12.*

¶ RICHARD B. WHITE '06, February.

¶ EBER I. WELLS '08, May 15.

¶ WILLIAM D. GREEN '09, May 4.*

¶ MARCELLUS E. WILD '14, May 12.

¶ THOMAS S. McLAUGHLIN '16, March 31.

¶ SAMUEL S. BURGEY '23, March 21.

¶ ROBERT W. TRACY '24, May 12.

¶ MARCUS J. LAWRENCE '29, May 11.*

¶ HENRY W. SALISBURY '33, May 16.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Technology Club of Eastern and Northern Maine

A dinner meeting of the Club was held on May 13 in the banquet hall of the Bangor House, Bangor, Maine. In addition to the scheduled speaker, Karl D. Fernstrom '10, Professor in the Department of Business and Engineering Administration, the Club also welcomed, as Professor Fernstrom's guests, Ralph E. Freeman, Professor of Economics, and Louis B. Slichter, Professor of Geophysics. Albert V. Smith '20, Superintendent of Buildings and Power, was present as the guest of Charles G. Paine '15. Franklin E. Bragg '97, our President, was toastmaster.

Professor Slichter told briefly of various phases of earthquake studies now in progress at M.I.T., and Professor Freeman outlined to the Club the new developments regarding Sloan fellowships in economics and business and engineering administration and he also told of work in the field of labor relations. Professor Fernstrom reported various items of alumni news and then showed a series of lantern slides of graphs prepared by the Economics Department, illustrating the business and economic history of the past ten years. Frequent questions from the group indicated a real interest in the material presented. — The Secretary reported a healthy growth during the Club's first year of renewed activity. Roy P. Whitney '35 was elected secretary-treasurer for the coming year.

Local Alumni attending the meeting were Gertrude E. Ebbeson '33, Franklin E. Bragg '97, Carl E. Danforth '05, Howard S. Gardner '30, Charles G. Paine '15, William C. Peters '02, and Roy P. Whitney '35, all of Bangor; Chester A. Robinson '32 of Brewer; Howard T. Clark '23 of Dover-Foxcroft; David Landen '30 of Oldtown; Bertrand F. Brann '12, Hugh D. Chase '23, William L. Gilliland '25, and William J. Sweetser '01, all of Orono. — ROY P. WHITNEY '35, *Secretary*, M.I.T. School of Chemical Engineering Practice, Eastern Manufacturing Company, Bangor, Maine.

Detroit Technology Association

We feel proud to be able to report another successful winter season. Our officers and committeemen have worked enthusiastically, with the result that we have had unusually interesting monthly meetings attended by exceptionally large numbers of local Alumni. We are continuing the listing of our Club in Detroit's telephone book because newcomers and visitors are taking advantage of the facility to locate old friends.

In December we organized for the Alumni Fund Campaign. Under the leadership of B. E. Hutchinson '09 and A. S. Douglass '08, we divided our Michigan membership of some 400 Alumni into groups of four or more and distributed these groups to a carefully picked group of 90 Alumni, requesting the latter to contact their assigned names and to obtain one of three answers: (1) subscription already sent to Cambridge; (2) subscription being inclosed with answer; (3) unable to give. The purpose of our Michigan committee was to make sure that each Alumnus in our region was personally contacted. We were a bit disappointed in our results but took some pride in the fact that we finished third in the metropolitan competition.

Late in the spring our scholarship committee, headed by A. C. Litchfield '18 and assisted by P. C. Baker '16, M. S. Dennett '11, R. C. Doremus '14, F. Fricker '25, and J. E. Longyear '26, met with Dean Lobdell '17 to review Honorary Secretary Litchfield's scholarship work performed throughout the year and to interview personally the 11 young men who were competing for the Michigan Regional Scholarship. Due to the very high quality of most of the competitors, the committee had some difficulty in making their selection. The committee felt most fortunate in being able to select for the Regional and proposing for the Freshmen Competitive Scholarships such promising young men.

Our present officers are Franklin Fricker '25, President; Edward A. Yates '29, Vice-President; John E. Longyear '26, Secretary; Maurice L. Ash, Jr., '26, Treasurer; Allyne C. Litchfield '18, honorary secretary; and John M. Campbell '25, program committeeman. We had seven regular monthly meetings, with an average of 60 per meeting and a high attendance of 130 at our dinner for Dr. Compton.

A brief résumé of our meetings follows: September 22. We swung into our 1937-1938 season with golf sticks, enjoying a glorious afternoon and evening of golfing, toasting, eating, and making merry at the Lochmoor Country Club. October 19. We enjoyed an interesting and instructive trip through the new Springwells pumping station of the city of Detroit, where we saw a very modern power, filtration, and water-pumping station. After the plant trip, which took place about 8:00 P.M., we had seen enough of water and we proceeded to Sandy Mac's, a stone's throw away, where we found plenty of eats and drinks.

December 1. One hundred and thirty of us gathered at the Detroit Club to do honor to Technology's President, Karl T. Compton. The evening started off warmly with cocktails and getting together, followed by a delicious dinner

and glorious singing and ended by Dr. Compton's exhilarating remarks. In Detroit we consider it a rare privilege to meet with Dr. Compton. His delightful personality, his understandable discourses on a variety of subjects, his very presence give us an inner lift. February 2. Because of the holiday rush we had no meeting in January, but in February we enjoyed a visit from Tech's Professor Schell '12. We gathered at the Intercollegiate Alumni Club to meet with the undergraduates traveling and visiting industry with Professor Schell during the between-terms holiday and to hear the professor tell us about M.I.T. in general and the Alumni Campaign in particular.

March 25. We met at the University Club to hear Alden B. Dow of Midland, Mich. Mr. Dow, who is one of the leading exponents of modern architectural design, told us of his work, illustrating his remarks with colored motion pictures. April 28. We gathered in the small dining room of the General Motors Building to hear George Finch of the Jam Handy Picture Service, Inc., tell us about the making and use of industrial motion pictures. Mr. Finch augmented his remarks with four reels of sound movies. May 24. This was our final meeting of the season. It was held at the Intercollegiate Alumni Club, and Dr. James S. Thomas, President of the Chrysler Institute of Engineering, talked to us about the "Scientist and the Social Order." — JOHN E. LONGYEAR '26, *Secretary*, 2000 Second Avenue, Detroit, Mich.

M.I.T. Club of Northern New Jersey

The curtain was drawn on the last official act of the 1937-1938 season with a dinner meeting of the officers and executive committee members at the Newark Athletic Club on May 23. The following 16 members attended: A. Raymond Brooks '17, Carole A. Clarke '21, William B. Coleman '24, Benjamin W. Dow '09, William J. Grady '22, Clayton D. Grover '22, Gordon G. Holbrook '10, Freeman B. Hudson, Jr., '34, John M. Keck '23, William J. Lutz '23, Joseph P. Maxfield '10, Augustus P. Munning '22, Miles Pennybacker '23, Alfred S. Phillips, Jr., '10, Everett W. Vilett '22, and John H. Wills '26.

The purpose of the meeting was to discuss the activities of the past year with retiring President Vilett and to make tentative plans for the coming year with President-elect Clarke. The total attendance at the three meetings during the year was 532, or an average of 177. Treasurer Wills made the gratifying announcement that the Club's net worth increased by one-third during the year. This is noteworthy since the Club operates without dues or assessments, although volun-

tary contributions of one dollar each are welcome. Thirty-four such contributions were received during the year.

The scholarship activity of the Club is outstanding. The Scholarship Committee and the Honorary Secretaries worked long and arduously on the scholarships for the forthcoming scholastic year. Preliminary individual interviews were held with a large number of applicants. On Friday and Saturday, May 20 and May 21, 42 of the applicants received final interviews at the Newark Athletic Club. Dean Lobdell '17 and Assistant Dean Pitté joined the Scholarship Committee for the final interviews. The Committee: McNeill '17, chairman, Phillips, Jr., '10, Mills '09, Maxfield '10, and Clarke '21. Forty-two boys were interviewed, of whom about three-quarters were recommended for scholarships, including the full-tuition regional scholarship. The names and amounts granted will be announced later.

The annual bridge contest between the New York and Northern New Jersey clubs is now a thing of the past. In a five-table tournament at the Newark Athletic Club the visiting contenders from New York gave our stalwarts a surprising upset. The affair was so greatly enjoyed that the participants are talking about a series of three matches for next year. Thimme '23 was master of bridge ceremonies.

Tentative plans for next year's meetings of the Club call for a smoker in the middle of November, a purely social get-together early in February, and the annual banquet in the middle of April. The club roster of Tech men in northern New Jersey now has 1,350 names, and one of the aims of the Club for next year will be to get as many as possible of these men acquainted with each other. The Executive Committee expressed their sincere appreciation to retiring President Vilett for his painstaking and vigorous leadership throughout the year and promised full coöperation to the President elect. — CLAYTON D. GROVER '22, *Secretary*, Whitehead Metal Products Company of New York, Inc., 303 West 10th Street, New York, New York. FREEMAN B. HUDSON '34, *Assistant Secretary*, Colgate-Palmolive-Peet Company, 105 Hudson Street, Jersey City, N.J.

Technology Club of New Bedford

The Club held its annual meeting at the Wamsutta Club on March 30 — a dinner followed by the election of C. Huntington Wardwell '24 to the presidency and John Duff, 3d, '35, to the executive committee. When the business had been transacted, Edward R. Schwarz '23, Professor of Textile Engineering, spoke on the "Development of Textile Research," illustrating his lecture with several hundred slides. The Review did not receive a report of this interesting occasion but from the newspaper account quotes the following: "... Professor Schwarz reviewed the development of the art of the use of fibers from the earliest times, beginning with the making of felt used as the earliest fabric by the Mongolians,

followed later by the development of the arts of spinning and weaving, in which cotton, wool and animal hair furnished the basis for the making of fabrics. From the earliest times down to the present, textiles have played a most important part in all civilizations, and as in the past so in the present we are born and die in close contact with textiles. It was made plain that our present civilization could scarcely maintain itself without the important textile fibers.

"The fascinating part of the lecture came during the course of Professor Schwarz's review of what pure science is doing in breaking down the constituent parts of different textile fibers and how what is learned from pure science is carried over into applied science. He emphasized that it has only been within a comparatively recent period that there has been a bridging of the gap between the pure scientist interested only in establishing some new truth and those who can make a practical use of what pure science has developed. It is for private institutions and the government, he said, to carry on the development of pure science, leaving to industry the practical application of the truths developed. Professor Schwarz showed microscopic views of sections of different fibers composed of fibrils, the latter made up of unseen molecules composed of crystallites, the latter made up of atoms, and they in turn made up of electrons. Man is clothed in carbon, hydrogen and nitrogen, he said.

"As for the future of cotton, regardless of its displacement by other fibers for some uses, Professor Schwarz said this fiber is destined to remain tremendously important in the mechanical arts because it is the toughest and strongest of all the fibers. There is no other fiber, he said, that can fill its place. Answering a question at the close as to the development of glass as a fiber, Professor Schwarz predicted its growing use in the manufacture of shoes, hats and belts, but experience has proved, he said, that spun glass cannot safely be used as clothing where it comes in contact with a person's flesh." — CHARLES L. FAUNCE '88, *Secretary*, 137 Brownell Street, New Bedford, Mass.

Niagara Falls Technology Club

On April 21 our Club held a dinner meeting at the Niagara Club. Harry L. Noyes '90 gave a report on the Alumni Fund and announced that the Niagara Falls Alumni were the winners of the Fund Campaign in District II. Our President, Burnham E. Field '15, appointed Michael G. Kelakos '35 chairman of the summer picnic committee. When this picnic is held the Technology steins that will be sent to all local members who contributed to the Alumni Fund will be formally dedicated. After a short business meeting a closely contested bowling match was held. Those attending were: Ira D. Chambers '25, Walter Crafts '26, Norman Duffett '11, Bruce Duffett, William T. Dunlap, Jr., '22, Burnham E. Field '15, Michael G. Kelakos '35, Calvin H. Mohr '33, Harry L. Noyes '90, Clinton

Perkins, Percy G. Savage '15, and J. Frederic Walker '25. — CALVIN H. MOHR '33, *Secretary*, 1224 Cayuga Drive, Niagara Falls, N.Y.

Washington Society of the M.I.T.

The annual ladies night of the Society, which took place on Saturday evening, April 30, at the National Park College, Forest Glen, Md., was no ordinary event. From the grand march *à la salle à manger* to the harmonious rendering of the "Stein Song" at midnight, enjoyment prevailed. The hospitality of Dr. Roy T. Davis, President of the college, and his 11 attractive hostesses was unsurpassed. About 100 partook of the excellent dinner and enjoyed to the full the amusing entertainment, interesting speeches, and enlivening music for the dancing which followed. Merton L. Emerson '04, chairman, and his efficient and hardworking committee were sincerely congratulated on having arranged so successful a party among such attractive surroundings.

Immediately following the dinner, F. H. Untiedt '22, introduced by Honorary Secretary Dougherty '97, demonstrated the marvels of technological progress in legerdemain. Trees were produced forthwith from newspapers, handkerchiefs of festive colors from thin air. Thereafter Paul Wooten, Washington correspondent of the McGraw-Hill Publishing Company, spoke from personal experiences of the present economic and political conditions prevailing throughout Europe. As past president of the Overseas Writers he was particularly well qualified to give us a most interesting account of the general situation abroad.

The high light of the evening was the address by P. C. Chang, professor of philosophy at the Nankai University, who spoke on "The Future of the Pacific." Dr. Chang developed his theme on Chinese progress around the letters M.I.T.: Modernization, Integration, and Technological advance have been the mileposts of China's forward march, Dr. Chang explained. Pointing out that life-and-death struggles with other nations have, throughout the world's history, been the chief cause of uniting scattered peoples into nationalistic groups, he predicted that a new and powerful China would arise victoriously out of the shambles of the Japanese invasion.

Dancing in the elaborately furnished ballroom of the college took place immediately after the dinner program was brought to a close by our President, C. P. Kerr '11. Impromptu rendering of "Take Me Back to Tech" and the "Stein Song" evidenced the feeling of good-fellowship and genuine Tech spirit which prevailed. Present at this enjoyable affair were President, C. Phillips Kerr '11; Secretary, Henry D. Randall, Jr., '31; Treasurer, Charles H. Godbold '98; Honorary Secretary, Proctor L. Dougherty '97; Dr. and Mrs. Roy T. Davis. The following also attended: Miss Henderson (hostess), Miss Gertrude M. Carnes (guest), Mrs. Isabel H. Kerr (guest), Merton L. Emerson '04, Charles G. Abbot '94, Miss

Katharine V. Lydell (guest), Mrs. Frances E. Emerson (guest), Paul Wooten (guest speaker), Miss Turner (hostess), Alfred E. Hanson '14, Mr. and Mrs. George W. Stone '89, Mr. and Mrs. David J. Guy '12, Walter L. Cook '03, Mr. and Mrs. John C. Damon '05, Mr. and Mrs. Lyman F. Hewins '98, Captain and Mrs. Paul C. Whitney (guests), Mr. and Mrs. Karl E. Schoenherr '22, Mr. and Mrs. O'Donnell (guests), Miss Farrell (hostess), Mr. and Mrs. Benjamin F. Thomas, Jr., '13, Mr. and Mrs. Merritt P. Smith '19, Mr. and Mrs. Joseph C. Dort '09, Miss Collins (hostess), Miss Emerson (hostess), Mr. and Mrs. Ralph Ilsley '25, Mr. and Mrs. Lawrence W. Conant '21, Mr. and Mrs. Philip W. Clark '21, W. Chambers Mehaffey '17, Parker Dodge '07 and Mrs. Parker Dodge '16, Mr. and Mrs. Harry L. Grant '00, Oliver G. Green '30 and guest, Pierre Blouke '19 and guest, Mr. and Mrs. John D. Fitch '24, Mr. and Mrs. Olcott L. Hooper '23, Mr. and Mrs. Joseph W. Clary '96, Mr. and Mrs. William D. Rowe '24, Miss Hutton (hostess), Miss Fleming (hostess), Miss Mitchell (guest), Roger E. Needham '36, Miss Swayne (guest), Judson C. Dickerman '95, Marshall M. Holcombe '36, Miss Craig (guest), Major and Mrs. Amasa M. Holcombe '04, Mr. and Mrs. Albert L. Johnson '26, Julius E. Nolte '98, Miss McLeod (hostess), Mr. and Mrs. William K. MacMahon '22, Mr. and Mrs. Karl French '26, Mr. and Mrs. Aksel M. Pedersen '12, Miss Priscilla Hopkins (guest), Miss Murphy (hostess), Frederick H. Untiedt '22, Benjamin A. Howes '97, Dwight F. Johns '22, Archie S. Buyers '23 and guest, Edwin W. James '07 and two guests, and Miss Bevan (hostess).

The regular monthly meeting of the Society was held at the Cosmos Club on May 20. Through the courtesy of Alumni Secretary Locke '96 there was shown a colored movie of the Tech-Herreshoff sailboats that proved to be most interesting. The guest speaker was Mr. Constantine A. Oumansky, counselor of the Soviet embassy, who spoke on the subject of "The Engineer in the Soviet Union." Much interest was shown in Mr. Oumansky's description of the conditions in the Soviet Union, and his highly interesting description was followed by many questions.

Dinner was served immediately after the speaking, and the meeting adjourned at 7:30 P.M. Those attending were as follows: President, C. P. Kerr '11; Treasurer, C. H. Godbold '98; Secretary, H. D. Randall, Jr., '31; Honorary Secretary, P. L. Dougherty '97; Members: Neil B. Musser '23, Albert F. Bird '30, Marshall M. Holcombe '36, Harry B. Swett '25, Minor S. Jameson, Jr., '34, George E. Wuestefeld '34, Edward D. Merrill '09, Frank W. Milliken '04, Harry H. Groves '04, Merton L. Emerson '04, Amasa M. Holcombe '04, Martin Boyce '98, George W. Stose '93, Gordon R. Williams '29, Benjamin F. Thomas, Jr., '13, William C. Mehaffey '17, George E. Marsh '02, Kenneth P. Armstrong '10, Valcoulon L. Ellicott '16, Al. F. O'Donnell '19, Edwin W. James '07, George E. Stratton '96,

Horace M. Baxter '17, Robert K. Thulman '22, Thomas C. Donnahue '35, William B. Poland '90, George W. Stone '89, Joseph W. Clary '96, Ferdinand T. Schneider '92, W. Lorrain Cook '03, James Swan '91, Charles C. Gager '17, Mason S. Noyes '19, Robert A. Fyfe '32, Frederick H. Untiedt '22, Paul J. Culhane '23, Frederick W. Swanton '90, Joseph Daleda '34, Henry C. Hoar '25, Alfred Hanson '14, Holland L. Robb '21, Leo A. Carten '34, George H. Southard, 3d, '23, Allen Pope '07, Theodore L. Soo-Hoo '26, William K. MacMahon '22, Joseph Y. Houghton '26, James A. Allan '28, George D. Mock '28, and John A. Plugge '29. — HENRY D. RANDALL, JR., '31, *Secretary*, 119 South Chelsea Lane, Bethesda, Md. LAWRENCE W. CONANT '21, *Review Secretary*, 3008 Ordway Street, Northwest, Washington, D.C.

M.I.T. Women's Association

"The Patent System and Its Relation to Educational Institutions" was the subject of an interesting talk by Vannevar Bush '16 before the Association and its guests at the semiannual professional meeting on May 12 in the Emma Rogers Room. Dean Bush said that his subject is one which usually resolves itself into a matter of human relations. He feels that we should all support the much-maligned patent system, as it encourages invention and by exclusion makes possible industry's investment of the money necessary to develop patents. Furthermore, without such a system there would be no encouragement to pioneer and no incentive to industrial research where interest is of necessity selfish. It is the exclusion clause which is important, not the manufacture, since fabrication will follow on demand.

Dr. Bush entertained us with descriptions of some of the odd patents that have been granted. One of these was for a new way of shooting quail: A saddle on the bird dog supported a gun, the trigger of which was attached to the dog's tail by a special mechanism. When the dog pointed, it fired the gun, perhaps at the quail. Dean Bush wondered about this inventor. He then spoke of the special needs for a patent policy in an institution such as M.I.T. The policy in practice for the past five years at Technology aims first to avoid distraction for the staff and to settle the delicate relation of inventor to patent owner in those cases where work is done under Institute research. Our policy is to make an assignment to the Research Corporation of New York, which agrees to develop the invention and lease it for manufacture. A small royalty is deducted for the inventor and 40 per cent is paid to Research Corporation for its part. Incidentally, such profits as the corporation makes are spent in research endowments, as it owns its stock and therefore pays no dividends. The remaining 60 per cent is turned back to the Institute and is used so far as is possible for further research in the particular field in which the original invention lay. Dean Bush ended by saying that expe-

rience has proved the policy sound, citing many interesting concrete examples of its practical applications. — PHYLLIS NEEDHAM '36, *Secretary*, 85 Kemper Street, Wollaston, Mass.

CLASS NOTES

1875

Following our usual custom of 57 years duration, four of the surviving members of the Class met at the Engineers Club in Boston on May 24 at one o'clock. They were Richard S. Atkinson, George H. Eddy, Charles A. Simpson, and Thomas Hibbard. An appetizing lunch was furnished by the club, after which the Class proceeded to business. The usual reports were read and accepted. The Secretary announced the deaths of two of the members which had come to his attention during the past year: Edgar S. Dorr (October 5), and Frank Lyman (April 26). Many regrets were expressed at the loss of these from our dwindling list. Letters from Bush and Prentiss were read and also a newspaper account of some of Bush's early experiences, which were thrillers. With mutual expressions of hopes that we all could meet again next year, the party separated at four o'clock. — THOMAS HIBBARD, *Secretary*, 4 Ridge Road, Milton, Mass.

1881

The May issue of *The Review* carried a brief notice of the death of Oscar Munyan on March 9. We were sorry to learn of the passing of this man who was health officer of Thompson, Conn., for 21 years. His daughter sent a clipping to *Technology* which explained that Munyan was stricken with a heart attack while investigating a case of chicken-pox in the village of Mechanicsville. The newspaper went on to say: "Mr. Munyan was born in Thompson on December 15, 1856, the son of James M. and Harriet A. (Wakefield) Munyan. The public schools of his native town afforded him his early educational opportunities. Later he attended Dean Academy in Franklin, Mass., and afterwards became a student at the Bryant-Stratton Business College in Providence. He next entered the Massachusetts Institute of Technology in Boston. . . ."

"Returning to Thompson, Mr. Munyan conducted a store and was also engaged in surveying. He spent four years in the store and then went west, where he was employed in a grocery house for a time. Returning to Thompson, he took over the old homestead, which he continued to farm for a period of 25 years. He subsequently purchased the Wilson farm property in 1909 which was his home, until he sold the property to the government a few years ago. Mr. Munyan married Miss Martha A. Card, a sister of the late Fred Card of this city, in Charleston, Pa., on April 13, 1880.

"In his political views, Mr. Munyan was a Democrat and served the town as a selectman, an auditor for three years, a

1881 Continued

member of the Board of Education for many years, besides being health officer and a representative from Thompson to the General Assembly during the 1931 session. Mr. Munyan is survived by his wife, one daughter, Miss S. Louise Munyan of Thompson, one son, Emery C. Munyan of Worcester, one brother, Judge Fred A. Munyan, and a sister, Miss Sarah Munyan, both of Thompson. He also leaves five grandchildren." In her letter, Miss Munyan explained that four of the grandchildren were the children of another daughter who died in 1918. We wish to express our sympathy to Munyan's family, and our thanks to Miss Munyan for sending us such complete information. — FRANK E. CAME, *Secretary*, Chambly Canton, Quebec, Canada.

1888

One of the many delightful features of our 50th reunion at Marblehead was the souvenir etching of Rogers presented to each member of the Class by Everitt Kilburn Taylor. With its cover embossed in blue and gold, it would have taken a prize at any exhibition of etchings. — Roper of Norfolk missed the celebration because the death of his brother-in-law made it necessary for him to spend the month of June in Paris with Mrs. Roper and her sister. — Annie Ware Sabine Siebert writes of her happy years at Technology and mentions the "very courteous consideration of my many classmates of '88 that made my study at the Institute so very pleasant." — Redd could not be with us but he tells a story worth repeating, as follows: "In the days of my youth, long, long ago, one of the old plantation darkies sent me a message from down home by an aunt who was visiting me, saying: 'Tell young Marsa Ben howdy for me and I spec he must be having a mighty good time up North riding up and down in elevators and drinking ice water.' From your letter I can well see that '88 will have even a better time than 'riding up and down in elevators with plenty of ice water.'"

Ladd, our old championship football guard, writes from his new home in Tulsa, Okla.: "The march of time makes it impossible to be with you on our 50th. I am in a new country in pleasant surroundings, mockingbirds and roses, why should I worry about the past? I'll miss greeting Ellis and Horn and if you go into the surf, think of me as being present in spirit." — Dwight Perkins was at his "Holiday House" in Pasadena, Calif., in April and said that he could not come, but his son Larry, a Cornell architect ten years out, promised his family to come with him and "keep him out of jail," so they motored all the way to Marblehead. — Teddy Foque, all the way from Northome Beach, Wayzata, Minn., was glad to see Marblehead again as he helped settle the Neck in the early '80's and had many a battle with the boys of the old town who resented the coming of the "city fellers."

Nathaniel Ingersoll Bowditch, Framingham, opened his estate, "The Lilacs," on May 18, visiting day of the

Framingham Garden Club. — Fred J. Wood — a lieutenant colonel, but to us Smoky Joe — our baseball pitcher who defeated '13 in 1913 at Wyanno on our 25th reunion, was responsible for bringing to our 50th the old prize flag we won in '84. — Nichols motored up from Orlando, Fla., by way of Columbiana, Ohio, where he trained two months for our golf tournament at the reunion. — Taylor, our artist-architect, "ordered" George B. Prinz, architect of Omaha, Neb., "to come by plane if flush or walk if broke but come in any case to our 50th." — Howard Gregory Hodgkins, Chicago architect and poet, wrote those three stirring stanzas contrasting the "hoss'n-buggy" age with this strong-arm era, which were received with so much enthusiasm after the class dinner.

Harold Gordon Gross, famous athlete, physician, and sportsman of Eureka, Calif., and member of the famous Technology varsity tug-of-war team that defeated Harvard in 1887, died on October 28 at St. Joseph's Hospital in Eureka. He had been suffering from a heart ailment for some time. The following appeared in a local paper of Eureka: "Dr. Gross had been a practicing physician in Eureka for over 44 years. He was the only son of the late Dr. and Mrs. Reuben Gross. He was born in Sussex Vale, near Frederickton, New Brunswick, September 1, 1867. When nine years of age he came to Eureka with his parents and with the exception of the time he was away at college, has made this his home continuously. He received his public school education in Eureka. In 1884 he went east and attended the Massachusetts Institute of Technology in Boston, Mass., where he graduated in 1888 with the degree of Bachelor of Sciences. He then attended the medical college of Harvard University, from which he graduated in 1891. After two years as interne in the city hospital in Boston he returned to Eureka and entered general medical practice with his father.

"Some years ago he took a special course at Manhattan Hospital College in New York, in diseases of the eye, ear, nose and throat, and, on his return to Eureka, he made a specialty of their treatment. In 1898 Dr. Gross was united in marriage to Miss Lena Sweasey, sister of Mayor Frank Sweasey. Mrs. Gross passed on several years ago. To them were born three children, James Gross of San Francisco, Mrs. Marion Falk and Mrs. Katherine Christie, both of Eureka. They were all with their father at the time of his passing. In addition to the three children mentioned he is survived by one sister, Mrs. Willard Wells of this city, and several other close relatives.

"Dr. Gross was a very fine character and was beloved by all who knew him. He not only was a wonderful physician, but he was also interested in civic and community affairs. At one time he served this city as councilman. An ardent fisherman and hunter he made many trips to the streams and wild places of the county in company with others who enjoyed

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outdoor sports, and by them he was recognized as a man of highest ideals and a companion worthy of their warmest friendship. He gave unstintingly of his time and attention to those things which meant the uplift of his fellows."

George Chester Scales, civil engineer, notice of whose death was given in the May issue of The Review, was born in Newton, Mass., and was graduated from the Newton High School in 1884. Successively he was with the Barber Asphalt Paving Company, Boston Paving Company, in Puerto Rico, Georgia, Alabama, Texas, Mississippi, South Carolina, and Minnesota, where he died in Minneapolis on March 7. The following appeared in a local Minneapolis paper: "George C. Scales, 915 Sixth street S.E., engineer with the Minnesota highway department, died at his home Monday. He was 71 years old. Surviving are two sisters, Nellie E. and C. Louise Scales of Newton, Mass., and New York city, respectively, and two brothers, William E. of New York city and Luther D. of Auburn, Me. Mr. Scales became highway department district engineer in 1921. Prior to that he had been with the United States bureau of public roads, coming to Minnesota in 1916. He was a member of Joppa Lodge, A.F. & A.M., and of the Minneapolis Engineers Club."

Walter Clarence Gage, II, passed away on April 30. The following notice appeared in a Springfield, Mass., paper: "Walter C. Gage, 71, of East Orange, N.J., formerly of Holyoke, died at Springfield Hospital this morning. He was born in Monson, the son of Lovell L. and Eliza (Sutcliffe) Gage. He was an engineer at the Worthington Pump Company for 52 years. He leaves two sons, Leonard B. Gage of Longmeadow, and Winthrop H. Gage of Boston, and three grandchildren."

A full account of the celebration of our 50th anniversary at Marblehead and Cambridge on June 3 to 7, inclusive, will be found in the forthcoming Review of November. — BERTRAND R. T. COLLINS, *Secretary*, Chebeague Island, Maine.

1890

The death in New Orleans of Marie Ada Molineux on May 16 is reported. Born in California, she had received her master's and doctor's degrees at Boston University and had studied music and languages in other schools before coming to M.I.T. as a special student in biology. Her training here she applied as an assistant to Professor Sedgwick, did some bacterial work for the State Board of Health, and during the War served as the head of a pathological laboratory. However, the field of liberal arts apparently attracted her more, and she taught psychology in several private schools in Boston, besides writing and lecturing on a variety of topics before women's clubs and literary societies. Her great interest was in the works of Robert Browning, on which the New Orleans *Times-Picayune* quotes her as an authority. She had spent much time in traveling to localities in England and on the Continent identified

with Browning and his poems and had been entertained several times by members of the Browning family. She edited a Browning phrase book, wrote many articles on the poet, and was instrumental in arranging for the production of Browning's plays in Massachusetts, maintaining that these dramas are more suitable for staging than is generally supposed. Although she retired a few years ago and went to live in New Orleans, she continued her literary work and within a few weeks before her death had completed for publication "A Commentary on the Ring and the Book." She was an honorary life member of Browning societies in Boston, New York, Los Angeles, and Kansas City; also of the American Association of University Women and the Ateneo Veneto of Venice, Italy. She was also a member of many other societies and trustee of the Hyatt Field Lesson Memorial Association. Evidently a woman of marked ability and versatility, a friend writes: "I have no words with which to express the spiritual and mental character of Dr. Molineux."

Franklin P. Gowing, who was with us part of two years, died at his home in Brookline on April 3. After leaving the Institute, he built up a successful leather business in which he continued for many years until he retired a few years ago. For a long time he was a member of the summer colony at Marblehead.

On April 21 at the Hayden Planetarium, a portrait of Charles Hayden by Wilbur Fiske Noyes, presented by his brother, was unveiled with appropriate exercises. In the course of the address of F. Trubee Davison, President of the American Museum, he stated that "since the planetarium opened its doors in October, 1935, about 1,500,000 visitors have seen the drama of the skies unfolded. More than 300,000 children of New York City have visited it in classes with their teachers." Professor William H. Barton, Jr., curator, in accepting the painting said: "It will not only serve as an inspiration to the youth of our country but it will stand in equal proportion as an inspiration to those who have it within their power to emulate Charles Hayden's outstanding example in providing for youth the facilities of education and enlightenment and the building of character."

Charles Alden, writing from Seattle, adds some notes concerning Elwood Emery, with whom he roomed while at the Institute and also at the University of Minnesota, from which Emery graduated before coming to Tech. He says: "We were two of only five graduates in Course IV, Class of '90, although there were a considerable number of others in the School of Architecture. We 'five regulars,' as we were called, were a congenial group while struggling for our graduation goal. After graduation from Tech, Emery was employed by Burnham and Root in Chicago, at that time very prominent in the architectural profession with a large practice. Elwood kept up his music, giving occasional lessons outside of office

hours. When the depression of 1893 arrived, putting most architectural draughtsmen out of jobs, he made the teaching of singing his vocation, taking the position at Iowa College. He became greatly interested in Christian Science, eventually becoming a reader. Such appointments being limited in duration, he afterwards devoted himself to some business enterprises and to genealogical research. He was an easy writer with a fine command of language."

The *Journal of the Patent Office Society* for April has a long article on Charles Neave, whose death was reported in the December Review. After outlining his training and his service to the bar and to the country and mentioning his being retained by many of the largest industrial corporations of America, it refers to his often being called in by his clients "for advice and counsel not only in matters affecting their legal rights and liabilities, but also when the questions involved called for the exercise of wise, enlightened and humane judgment." The article closes with a quotation from a tribute by Judge Hand of the United States Circuit Court at the annual dinner in February, who said in part: "He could condense what he had to say into the most surprisingly small compass, both in his arguments and in his briefs; whether this was the result of much labor or of an amazing facility, I was always puzzled to know. He could make plain — or at least it seemed so to his hearers — complicated questions in chemistry and electricity with a clarity that was unequalled in my experience. We shall not see his better in his field; indeed, he had few, if any equals."

The Office of the Register of Former Students reports that Minnie Rogers has removed to 81 Boylston Street, Jamaica Plain, and Warren F. Daniell to 195 Ashley Road, Santa Barbara, Calif. While the latter has been living at Franklin, N.H., he has for some time been spending his winters at Santa Barbara. — GEORGE A. PACKARD, *Secretary*, 50 Congress Street, Boston, Mass. HARRY M. GOODWIN, *Assistant Secretary*, Room 4-112, M.I.T., Cambridge, Mass.

1892

H. A. Burnham, who continues with the Factory Mutual Fire Insurance Company, put in an appearance at M.I.T. in February. He saw Professors Park and Fuller, and dropped into Hutchinson's office. The latter, as it happened, was absent at the time.

A letter from Wesley Halliburton, whose letterhead reads "Farm Investments, Memphis, Tennessee," follows. (Some of you ought to remember him, even though he spent only one year here after graduating from Vanderbilt University. He took work in civil engineering under Professors Swain '77 and Lanza.) "I have about as much moral right to vote in this election as a negro chauffeur to a planter friend of mine over in Arkansas has to vote for a chief justice in that state. The story is like this: Being over in the neighborhood and

wanting a notary public, I thought perhaps this friend of mine might be one. Driving up to his house, this negro was in the front yard, and I asked if his master was a notary public. He hesitated a moment and said: 'I-I-I don't think he is. I-I think he is a Democrat.' So, paralleling the case, I do not know whether these candidates for office are notary publics or Democrats. Then why should I express a preference?"

"The days I was associated with the Institute were from October, 1891, through May of 1892. The late and beloved Professor Swain drilled me in the art of structural iron, and besides these mysteries, I had applied mechanics under Professor Lanza and one or two other subjects allied to the main idea of my coming there. Naturally I did not become very closely identified with even the members of the graduating class. Consequently my attachment to this institution is due more to my admiration for its great reputation than to thoughts engendered by the alma mater idea. Vanderbilt University can only be my Mother. I shall continue my connection with the Alumni Association and its very interesting publication, although I have been unable to glean from its pages news of any '92 men. Wonder what has become of all of them? Surely some of them should have arrived to the front page of excellency. Personally my fervor for structural iron cooled off, and I took up with the soil and have been true to it until now. At my age of 68, I am hale, comfortable, and my hobby is travel. My philosophy is based on the idea of a peaceful life and of usefulness in one's community. Pardon me for putting up to you the decision of whether you should read all this letter or not. Retrospection comes as the years advance. Would these thoughts be more stirring had I built a bridge across the English Channel or some other great monument in steel? Perhaps so, yet my days have been active and interesting."

Your Secretaries regret to report the death of George E. Chapin in Malden, Mass., on February 19. He was born in Charlestown, Mass., attended M.I.T. one year, and later went to Cornell University, where he was graduated in 1894. He was for 12 years engineer for the Malden and Melrose Gas and Electric Company. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass. W. SPENCER HUTCHINSON, *Assistant Secretary*, Room 8-219, M.I.T., Cambridge, Mass.

1894

It is always a pleasure to get a letter from Billie King, and the receipt of a letter a few days ago was no exception to the rule. King stated that he was not able to attend the Alumni Day celebration as, with his wife and daughter, he was taking a trip to Europe and would be away until midsummer. They sailed on the S.S. *Samaria* on May 21 and spent the first part of the vacation in England, especially in London, after which they were to visit France, Paris of course, Switzerland, and later Italy, sailing from one of the Italian ports for home in the

1894 Continued

latter part of this month. Like so many other of the old Alumni, King wrote affectionately about the Rogers steps and wished there might be some way to have them transported to the Cambridge side of the river and utilized in connection with the new developments here. It is rather difficult to see where they would fit into the present architectural scheme of things, but it may be that the Rogers steps will still be a shrine for old Technology graduates as well as a meeting place for the undergraduates. We all wish King a delightful summer abroad and hope that he may run across our classmates, Price and Robeson, during his travels.

On the fifth of May, Sayward was on the air broadcasting from Station WCOP, Boston, in regard to the youth hostels which have been established throughout New England and in which he is extremely interested. — C. H. Cutler, who has for a number of years been on the list of the unreported, has recently sent in a card informing us that he is living in Pittsfield, Mass., where I presume he is with the General Electric Company. His home address is 24 Clinton Avenue.

Mrs. Walter B. Griffin (Marion Mahoney) has returned to Australia, where for so many years she lived while she and her husband were developing the Australian capital. Address now given is Castle Crag, Willoughby, New South Wales. — C. A. Hamblet, whose last reported address was Wilmington, Del., has returned to his native place and is now located at 495 Varum Avenue, Lowell, Mass.

One of the prize "lost" men of the Class is W. S. Hulse. He certainly has been a most elusive person. Soon after our graduation he went to Germany and was for many years in professional work there. Later a Boston address was discovered, and then it was found that he had gone to some other remote part of the world. After that he came back to New York and then, after losing track of him again, notice was recently received that he is now in New York once more, his address being care of the Engineers Club, 32 West 40th Street. — F. A. Schiertz, who was for a number of years at Roebling, N.J., working on the materials for the big San Francisco bridges, has returned to New England, and his present address is Eager Court, Marlboro, Mass. We should certainly like to see Ferdinand Alphonso back for a reunion.

Jim Kimberly has returned from Tryon, N.C., where he has been recently living, to his old home town, Neenah, Wis. As one of the officials of the Kimberly-Clark paper company, Jim and his two sons, who are also Tech men and connected with the company, constitute a very busy family. — Harry Gardner of the School of Architecture is back on the job after a season in the hospital and is very busy in connection with the moving of the School from the old Rogers Building to the new building now being constructed in Cambridge and which is to be known also as the Rogers Building. — Joe Kimball

is still one of the important men in the corps of engineers connected with the T.V.A. project.

Happening to drop in to the Public Utilities Commission at the Massachusetts State House a few weeks ago, the Secretary was delighted to encounter Leslie Moore, whose activities in connection with the utilities under state supervision have been broadened so that they now include not only gas and electric lighting but water supplies and kindred things. I can assure you that if you have any occasion to get information from this commission, Moore will be most useful in getting the desired information. — George Haven has been teaching in the Lowell Institute School during the winter and also engaged in textile research in which he has a wide reputation.

Steve Breed is retiring, at the end of the current academic year, as associate professor of drawing and descriptive geometry. Steve has a variety of interests, not the least of which is his association with summer camps for boys, and he will undoubtedly have all he wants to do in connection with this important branch of the big business of healthful vacationing. — The Secretary was in Rochester, N.Y., a few weeks ago and attempted to locate Frank Lovejoy, but was given the information that he was out of town. Knowing that this may mean anything from business in New York to a Corporation meeting in Boston or one of his periodic trips to London and the Continent in connection with the business of the Kodak Company, the Secretary discreetly hung up and made no further inquiries.

The Secretary himself is doing a little traveling this summer, as he left New York on June 22 to attend a meeting of the committees in charge of the next International Congress of Refrigeration which is scheduled to take place in Tokyo. This is, however, a comparatively brief trip, as before the end of this month he will be back again at the Institute. The trip to England, while essentially a business one, will have some other very pleasant features, among which will be attendance at a special ceremony at Bristol University and visits to a number of the research laboratories in and around London, as well as visits with personal friends and old associates in the southern part of England. If time permits, an attempt will be made to get in contact with Clive Davies although the last news regarding him was that he was in Hawaii. — Al Tenney and his wife have recently sailed for Rio de Janeiro, Brazil, for a visit to Tenney's son, who is associated with the American Air Lines there. — SAMUEL C. PRESCOTT, *Secretary*, Room 10-405, M.I.T., Cambridge, Mass.

1895

Your "wandering secretary-boy" arrived home from his three months' trip too late to send class notes for the June issue but was very grateful for the letters from both Jack Gardiner and Fred Cutter relating the event of a class luncheon held early in April in New York City

with the following men present: Azel Ames, Arthur Canfield, Fred Cutter, John Gardiner, James Humphreys, John D. Moore, Frank Schmitz, Gerard Swope, Tom Wiggin, and Archer Wheeler. The luncheon was held in one of the rooms of the General Electric Company, 570 Lexington Avenue, through the courtesy of Gerard Swope. It was the unanimous opinion that the 1940 class reunion be held a year earlier — in 1939 — near New York City, in order to give some of our western classmates the double pleasure of a reunion and the New York World's Fair. This plan seems most feasible, and suggestions are in order as to time and place.

Harold N. Rust, who lived for many years in Wilkes-Barre, Pa., has moved to 2100 Walnut Street, Philadelphia. — George T. McKay has changed his address from Marblehead, Mass., to Hotel Victoria, Dartmouth Street, Boston. — William F. Patten now resides at 36 Hersey Street, Hingham, Mass. — Joseph C. Walier can now be found at 716 Woods Road, Solvay, N.Y. — Professor Charles E. Littlefield's address is Post Office Box 24, Miami Springs, Fla.

We are advised that Harlus Boyden White passed away on December 13, 1922. — Albert Dunbar, V (retired), who lived at 8 Cushing Avenue, Dorchester, Mass., passed away on December 21. — John Adams Rathbone, VI, of the Rathbone Multiple Molding Machine Company, Pinckney, Mich., died suddenly on February 19. — We learn from returned mail that David Wilkinson, III, who was an invalid for some time and resided in London, England, passed away on June 28, 1937. — Duane Leroi Bliss, Jr., II, who was president of Dunham Carrigan and Hayden Company, San Francisco, Calif., died on April 17.

Your Secretary and Mrs. Yoder drove nearly 6,000 miles on their trip South and have become loyal Florida boosters. Stops were made at Williamsburg, Va., St. Augustine, and then in about all the other important places in Florida. The return trip also proved most interesting as stops were made at Berea, Ky., where the various college industries were visited, Cincinnati and Cleveland, Ohio, Pittsburgh, Pa., and Atlantic City, N.J., seeing many dear old friends. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N.Y.

1896

Arthur Baldwin surprised the Secretary by calling on May 23. Arthur was making a periodical visit to the United States from his job as Paris representative of the International General Electric Company. He was looking very much his usual self and reported that he had now received the honor of promotion into the grandfather class, due to a happy event in his son's family about three months previous. Arthur was bearing the honor lightly, and certainly he hardly looked the part of a grandfather. According to his statement there is more talk and more excite-

1896 Continued

ment in the United States over the possibility of a European war than exists in Europe. — Will Coolidge was recently granted patents by the United States government on an electron discharge device. This patent was assigned to the General Electric Company. — The Boston papers recently reported the death of Percy K. Crocker as having occurred on May 6. The Secretary is seeking further information and will report his findings in the next issue. Crocker had been a man for whom we had not had any address for many years, but apparently he had been located around New York City on newspaper advertising work.

One very happy outcome of the item regarding Russell Porter in the last issue was a personal communication from Porter to the Secretary. Porter is not a man who writes a great deal, so a letter from him is an event. He is busy every minute on the equipment of the 200-inch telescope observatory in California, and he pays great tribute to Professor Despradelle for having taught him the fundamentals which he is now employing on the present job. — Dennie '11 has sent the Secretary a clipping from the Worcester *Telegram* giving the announcement that James H. Fuller of the Worcester North High School was the winner of the grand prize of \$25 in the state dental health poster contest. This announcement was made at the gathering of 560 members of the Massachusetts Dental Society in Boston on April 27. Fuller was the victor in Group IV — 10th, 11th, and 12th grades — and the best of all entrants. This announcement is of particular interest to '96 men because the prize winner is the son of our own classmate, Bob Fuller.

The deaths of Fred M. Crosby and Harold A. Peckham were mentioned last month. Crosby was with our Class for three years in electrical engineering and naval architecture. He was very active as a student, being a member of Theta Xi, manager of the freshman football team, the freshman baseball team, the Glee Club, and the varsity football team. He was a natural manager. He was born August 28, 1874, in Enfield, Mass., son of John Marshall Crosby, Jr., and Della M. Gross Crosby. His career was almost entirely in connection with hotel affairs. From 1896 to 1900 he was proprietor of the Hotel Tuileries in Boston and owner of the Hotel Leonia in Hampton, N.H. From 1905 to 1918 he was lessee and owner of a chain of New England hotels including Hampton Court and Richmond Court in Brookline, Mass., Hampton Court Farms in Wellesley, and Hotel Whittier in Hampton, N.H. He was also acting manager of the Hotel St. Louis in Duluth, Minn. From 1918 to 1923 he was manager of the Hotel Huntington in Pasadena, Calif., and in 1919 he had also the Hotel Ambassador in Atlantic City. In 1924 he became traveling director of the Broadmoor Hotel in Colorado Springs. In 1925 he became general manager of the Chicago Athletic Association and later was with the Whittier-Burns Hotel in Detroit. At the time of his death,

which was self-inflicted, he was in the Congress Hotel in Chicago. Crosby was a widower and had no children. His death occurred April 22. He had been in ill-health for several months and his last position, from which he retired in 1936, was manager of the Flamingo Hotel in Chicago. His aged mother was living with him. From Lonsdale Green '87 and Richard Schmidt '87 comes the information that Crosby was a most efficient manager. He was doing splendid work with the Chicago Athletic Association, but when a change of administration came, the new governors had a friend whom they wanted to put in as manager, and Fred was let out. Fred kept so close to business that while he was around Boston, classmates did not see much of him and likewise in Chicago he did not take any active part in alumni affairs. Fred knew the hotel business from top to bottom and front to back. On one occasion the question came up of hotel equipment, and Fred was found to have at his finger tips all of the detailed knowledge of the items and cost down to the very smallest for room equipment.

Harold A. Peckham, who had the title of colonel, was with us for one year in the School of Architecture. He was born September 17, 1873, in Newport, R.I., where he resided throughout his life. He was the son of Felix and Mary J. Young Peckham. He was married on June 11, 1896, to Sarah P. Landers, and one son, Harold, was born on June 12, 1897. He attended the public schools of Newport and Chauncy Hall School of Boston, before coming to M.I.T. His first work was in the insurance business in Boston. In 1895 he formed a partnership with Albert C. Landers, Jr., and conducted for several years a butter, egg, and dairy products business in Newport. In 1920 he entered the investment business, dealing in stocks and bonds, and was successively with Gillespie, Meade and Company, Prince and Whiteley, Morrison and Townsend, G. M. P. Murphy and Company, and Abbott, Proctor and Paine. Mr. Peckham was a colonel on the staff of Governor Utter of Rhode Island from 1905 to 1907. He served for several years as member of the original Representative Council of 195. He was for years a member of the old Freebody Park Commission and later of the Park Commission, of which he was chairman until 1934, and of the Recreation Commission as representative of the Park Commission. He belonged to the Masons, the Red Men, the Rod and Gun Club, and the New England Order of Protection. His clubs were the Miantonomi, Rotary, and Wanumetonomy. He also belonged to the Newport Reading Room and the Chamber of Commerce. He was always actively interested in sports, in gunning and fishing, and was a prominent golf player, winning many prizes at the Wanumetonomy Golf Club and in state contests. During the World War he was at the second Plattsburg camp but was discharged on account of an injured leg. He entered the camp a second time just before the Armistice. — CHARLES E. LOCKE, Secretary, Room 8-109, M.I.T.,

Cambridge, Mass. JOHN A. ROCKWELL, Assistant Secretary, 24 Garden Street, Cambridge, Mass.

1899

George H. Priest, who was for many years connected with the Brockton Gas Light Company, Brockton, Mass., decided about two years ago that he had worked enough and retired. He left Brockton and went to Brattleboro, Vt., where he is giving his attention to the development of a 500-acre farm known as Rice Farms, Inc. Rice Farms is a club as well as a farm, beautifully situated on a bluff about three miles from Brattleboro. George has four saddle horses and two teams of draft horses; 70 head of purebred Aberdeen-Angus cattle, some geese, chickens, ducks, pigs, and a few dairy cows. The Aberdeen-Angus cattle are beef cattle only, and have lusty voices which they raise in melodious cacophony early in the morning. I know; I have heard them. George has a charming home on one part of the farm. It overlooks the Connecticut River Valley and the surrounding hills, and the view is magnificent. I expect to see more or less of George this summer because I have bought a small farm at Westmoreland, N.H., about 12 miles from Brattleboro. Possibly other members of the Class will come up and join the group. George, who has been there long enough to know, says that the tempo of life is definitely slower than in the cities, which is all to the good so far as I am concerned.

Norman P. Rood, Post Office Box 2027, Wilmington, Del., has notified me that he resigned his position with the Hercules Powder Company about two years ago, and that the company's stock has been declining on the market ever since. That, he says, may be just a happenstance. At the same time, there the fact is, and readers may interpret it as they choose. For two years he has been hanging out at the "Meadows," reading *The Review* and other good things, so he is not in a position to supply any news. He claims if I had read the newspapers (and I do), I must have noticed the remarkable achievements of his daughter Deborah with her good Irish horse, Dublin Venture, and her promising colt, Dormir d'Or, at the horse show in Madison Square Garden, New York City. For those of you who didn't read the papers, the fact is that the colt brought home the blue ribbon out of a class of 32 of the best horses of the United States. Old Venture brought home four blues. Norman thought the record was pretty good, and I agree.

He thinks I ought to be able to crib a little news from the newspapers for reprinting in *The Review*. Perhaps Norman doesn't know the rule of "news." I'm not going to let anyone call me a plagiarist or cribber. So if we have a column, it will be real news supplied by class members. He approved my reading of the *Reader's Digest* but told me flatly that nothing in it could be news. Does he want me to make a digest of our column? I am going up to see Norman some day.

1899 Continued

He told me to come along and ring the doorbell. He told me too that they have some new dogs that are not acquainted with me. They bark a lot but will not bother me if I tell them what my politics are. That leaves me wondering what they will do if my politics don't suit them. When I find out, I will let you know.

Allen Loomis writes from Elkhart, Ind., that his company has just developed and perfected the Conn chromatic stroboscope which measures to $\frac{1}{1000}$ th of a semitone the pitch of any musical sound within the range of seven octaves. Loomis has five children, four of whom are married. One son is an experimental engineer at Norge Refrigerator Company, Detroit. The daughters live in Indiana and Long Island, New York, and the annual reunion takes place each summer at his summer place at Higgins Lake in Michigan where, of course, there is a sailboat. Allen always did like boats and is not content with the one on the lake in the summer, so has another on the river which lies only 15 feet from his garden. Naval architecture makes a wonderful hobby.

Loomis has all of his hair and quotes Gelett Burgess '87 on color: "It has changed to a rather light tint of brown." He then philosophized on how handsome the boys of '99 would be with white hair, but admitted he hadn't been able to check up as many years have elapsed since he has seen a member of the Class. He is a director of the Elkhart Rotary Club and of the Elkhart Knife and Fork Club; a trustee of the First Congregational Church of Elkhart; and president of the Pinewoods Camp Association (a corporation of Michigan not organized for profit).

C. A. Smith, superintendent of the roadway department, Georgia Power Company, Atlanta, Ga., is interested in what we are going to do about a reunion of the Class on the occasion of the 40th anniversary of our graduation. This anniversary falls in 1939, and it is none too soon for each member of the Class to have a thought on the matter and send it in to the Secretary.

It is with regret that I report the passing of F. W. Caldwell of Schenectady, N.Y., on April 27, and that of Willard Telle Cannon on December 29 at Balboa, Canal Zone. Cannon died en route to Cuba on a vacation cruise. Frederick Caldwell entered the employ of the General Electric Company in 1902 as a member of the staff of the vice-president in charge of engineering. He remained with that company until 1928 when he removed to Montreal, Canada. Four years ago he retired and returned to Schenectady to live. — W. MALCOLM CORSE, *Secretary*, 1901 Wyoming Avenue, Northwest, Washington, D.C. ARTHUR H. BROWN, *Assistant Secretary*, 53 State Street, Boston, Mass.

1901

A New York newspaper under date of March 24 carried the following news item from Wilmington, Del., dated March 23: "Lammot du Pont, President of E. I. du Pont de Nemours & Co., Inc., declared

today he hadn't 'the slightest doubt' business could find work for all who 'want a job' and if given 'reasonable certainty' conditions would remain 'reasonably stable.' 'But,' he added, 'Permanent relief' for the needy might become necessary. 'If business is to be permanently overtaxed, handicapped and impeded.'" Lammot undoubtedly knows what he is talking about, and we therefore trust that business as a whole will be receiving some real encouragement in the very near future. We hope too that all members of the Class will have an interesting, if not too profitable, summer, and that by the time the class notes are written for the November Review general business conditions will be showing much improvement. In the meantime your Secretary plans to send out the annual class letter with the usual inclosures and to describe events which occurred on Alumni Day, June 6, as these notes for the July issue had to be sent to the Editor not later than May 25.

Speaking of traveling, the Alumni Office has sent in a news item to the effect that "Fred Clapp, while driving from the fields of the Inland Exploration Company in Afghanistan to those of the Amiranian Oil Company in southeastern Iran during January, was marooned by floods not far from the railway through Baluchistan. He arrived in Zahidan, temporary headquarters for many of the Amiranian geologists, early in February, whence he proceeded northward through the several sedimentary basins in which the company is operating to inspect the results of the recent surveys." We hope that Fred is finding lots of oil and possibly other valuable deposits and that we will be hearing more about his successful adventures in due course.

The Alumni Office also sent notice of the death on April 23, 1934, of Edward H. Callahan, VI. We were sorry to receive that notice and shall be pleased to make further notation as to why the regretted notice of his death on April 23, 1934, was so much delayed if any member of the Class can send us information. — The following changes of address have also been received: P. Freeman Goodwin can now be reached by addressing Post Office Box 326, Kennebunkport, Maine, and Joseph E. Philbrick, X, gives his address as Ernst and Ernst, 1356 Union Trust Building, Cleveland, Ohio. In addition we have received announcement of the new address of Paul Hilken as being 15 East 41st Street, New York City. That announcement also stated that Paul is now specializing in Clarence Hodson and Company securities and that he continues to be interested in the handling of the National Unit Cumulative Investment Fund certificates. Your Secretary hopes to get in touch with Hilken and a number of the other New York members of the Class and perhaps arrange for a luncheon together shortly.

On a recent visit to Gloucester, Mass., your Secretary was fortunate in finding Arthur Davis at the office of the Frank E. Davis Fish Company, and Arthur stated that the mail order fish business was not

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too good and that it was hard to say when any improvement could be expected. That is certainly too bad, for the Davis Company has perfected an entirely successful method of shipping by mail all kinds of fish, lobsters, and other kinds of shellfish, and your Secretary has had the opportunity of testing and knowing that the products are all of the very best.

As I believe has been previously mentioned, Willard Dow, Assistant Secretary, is the class member for the Alumni Council and your Secretary happens to be the Alumni Council member from the Technology Club of Hartford. At the Council meeting which was held in Cambridge on March 28, I was, therefore, delighted to see Willard. Dow reported that business was quite good for him at that time but could not be so sure about the future, although many concerns have more need for efficient certified public accountants during depressions than during good times.

In regard to the Alumni Council meetings, they are usually very interesting, as addresses are made by well-known authorities on numerous subjects. For example, the subject for the meeting of March 28 pertained to the new Industrial Relations Section of M.I.T. and the speakers were W. Rupert Maclaurin and Douglass V. Brown, the two new members of the staff who are in charge of the new Section. They described rather elaborate studies which have recently been made for the General Electric plant at Lynn, Mass., and elsewhere and quoted the results of a number of questionnaires which, by agreement with the controlling labor unions, had been presented to the union members. The subject of the address for the meeting of May 26 was "Some Recent Advances at the Institute in the Medical Application of Physics." The speaker was Robley D. Evans, Associate Professor of Physics. Willard and I will be glad to have '01 men attend these meetings as our guests whenever they are in Boston on meeting nights, the dinners being held at 6:00 P.M. on the last Monday of each month, except June, July, August, September, and December, in the North Hall of Walker Memorial at Cambridge. — ROGER W. WIGHT, *Secretary*, The Travelers Fire Insurance Company, Hartford, Conn. WILLARD W. DOW, C.P.A., *Assistant Secretary*, 20 Beacon Street, Boston, Mass.

1902

The engagement of Jason Mixter's daughter, Elizabeth Elliot Mixter, to Dr. H. Thomas Ballantine, was announced in the early part of May. — Adrian Sawyer's firm has been awarded the contract for the erection of the George White Memorial Hospital, one of the largest buildings to be built in the near future in Boston. His firm will also construct the new Simmons College dormitory. — Word has been received of the recent death of Earl P. Pitts, Jr., of Wellesley, son of our classmate. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston, Mass.

1904

Notes for this issue are very scant, but such as there are will serve to hold our place in line. Our ace correspondent, Professor Locke '96, sends in a note saying that Guy C. Riddell recently returned from the West, where he has been since last October, in connection with the development and operation of gold and petroleum properties in New Mexico, Arizona, and California.

A clipping from the Boston *Herald* of April 3 gives information regarding the son of one of our members: "Mrs. Jesse Fuller, Jr., of New York and Beacon Street announces the engagement of her daughter, Miss Catherine Fuller, to Mr. Charles McNair Magnuson, son of Mr. and Mrs. Mark G. Magnuson of New York. Miss Fuller attended Packer Collegiate Institute and is a graduate of the Chevy Chase School in Washington and Mount Holyoke College. She is now studying at the Modern School of Applied Art, Boston. Mr. Magnuson is a graduate of the Lawrenceville School and was a member of the class of 1937 at Yale. He is now studying at the Massachusetts Institute of Technology. He is a member of the Delta Kappa Epsilon fraternity."

Mert Emerson now represents the Washington Society of the M.I.T. on the Alumni Council. — And that is all the news I have, but I hope you all have a pleasant and happy vacation. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 4817 Woodway Lane, Northwest, Washington, D.C.

1905

From Edith Wheeler, V, now Mrs. E. P. Ripley of Weston, Mass., your Secretary received a note of sympathy based upon her experience as secretary of the Class of 1896 at Wellesley. Her inference that men "are even less communicative than women" is true except in a few rare instances (no names mentioned). Mrs. Ripley tells us that her daughter, Cora Stuart, Smith '33, was married on October 12 to Robert A. Currie, Jr., of Weston; a son, Edward Pearson, Jr., Williams '33, is connected with the sales department of Bassick Company in Bridgeport, Conn.; another son, Yale '36, is orchardist with the moth extermination department in Weston. Evidently coeds are no more consistent than the fellows in sending their children to their alma maters.

Francis Drake, II, writes: "For your records, I am vice-president and director of E. M. Gilbert engineering branch of the Utility Management Corporation, 150 Broadway, New York City. We do all the engineering and managing of the gas and electric properties in the Associated System, which are scattered over 26 states in the Union and the Philippine Islands. I personally supervise all gas operations and construction, so am traveling from one-half to two-thirds of the time and, with conditions as they are, it necessitates a great deal closer application to one's duties than ever before; for as you

and all the rest of us know, a nickel has to do the work of a dollar these days, particularly in the utility industry. I still live at 50 Boulevard, Pelham Heights, N.Y., and still have the same wife and three children that I had when last I wrote. My older daughter is through school, having followed in her mother's footsteps and attended Wellesley. My son, Francis E., Jr., graduated from Columbia University last year in the electrical engineering course and is now working for the Rochester Gas and Electric Corporation, Rochester, N.Y., following his father into the utility business. My younger daughter is in high school but now expects in September to enter Duke University. So much for the Drakes. I do hope that I can join you at Old Lyme, but in case I am unable to, my very best regards to you one and all. May you have pleasant weather and a lovely reunion, as I know you will."

George Jones, II, just manages to hold his assistant secretaryship by manufacturing this one about Frank Payne: "Priscilla Payne's debut year will have an auspicious beginning. Immediately after her graduation from the Madeira School in June, Miss Payne will leave for a two months' holiday in Europe. She will travel with a group of friends, chaperoned by Miss Edna True. On her return she will be the guest of honor at a luncheon Helen Shoemaker is giving September 3 for a number of next season's debutantes. Miss Payne will make her formal debut on Christmas Day. Her parents, Mr. and Mrs. Frank E. Payne, will entertain at both a tea and dance — the tea for their own friends and the dance following it for the young people."

Arthur E. Russell, XIII, has recently been appointed chief draftsman of the engineering design section at the Charlestown Navy Yard, with rating of senior marine engineer. — Ellis G. Wood, II, of Duxbury, Mass., who threatens to attend our get-togethers but never quite makes them, writes: "On the shelf at present. Sometimes, on this 12-acre place, I feel like an old horse pastured out, but I look forward to renewed activities within a few months. In the meantime, my wife helps me cultivate patience. Just now I feel quite proud because my daughter's second child, born recently, was named after me. What kind of a world will he experience 50 years or more hence?"

H. S. Bailey, V, writes from Ontario, Calif., that he will start making the 3,000-mile trek to Old Lyme about 1945. We'll try to remember to hold him to that promise. — In a copy of the Illinois *Alumni News*, we noted a photograph of H. J. Macintire, II, and underneath this inscription: "As we set down these words the weather gauge outside is above 100, and we are not without some desire to think about the professor of refrigeration in the University, H. J. Macintire. He teaches all the courses in the subject given here, and is a valued consultant whenever refrigeration matters come up. At the time the Skating Rink was built, involving the construction of an enormous refrigeration system, he spent consider-

able time going over the plans. He is a member of Theta Xi fraternity, and is adviser to the local chapter. He has degrees from Massachusetts Tech and Harvard, is married, has two children." If the cut is from a recent photograph, the cares of a refrigeration professor have rested lightly on Mac, as it depicts a lad of 40. Mac regrets, with all our other profs, that graduation duties prevent attendance at our Old Lyme reunions.

The death of Paul J. Ralph, XIII, is reported in the Princeton *Alumni Journal*: "Paul Joseph Ralph, Princeton '03, died at his home in Pennington, N.J., on April 12, of coronary thrombosis after an illness of only four days. There was no man in 1903 more regular in attendance at reunions and other Class gatherings. Quiet and unobtrusive, Paul keenly enjoyed sitting down with classmates to recall incidents of our four years at Princeton, or to talk about politics, finance, or any of the other subjects that come up for discussion when a few fellows get together. He was possessed of an unflinching sense of humor and of accurate knowledge concerning a great variety of subjects. He was modest, tolerant, friendly. It is impossible to conceive of his having had an enemy. After graduating as a civil engineer, Paul studied naval architecture at M.I.T. two years and thereafter engaged in shipbuilding. When the United States entered the war, he went with the Emergency Fleet Corps of the U. S. Shipping Board in charge of equipping vessels with devices for cutting mine cables. So efficient was his work that our country did not lose a single merchantman from submarine mines. For the past several years, Paul was employed by the Updike-Kennedy Co., Inc., lumber and coal, in Trenton, being treasurer of that corporation at the time of his death. On September 27, 1919, he married Margaret Kennedy of Trenton, who survives, as does their daughter, Elizabeth, a senior at George School, Newtown, Pa. To them the Class extends its heartfelt sympathy. Paul's memory will be cherished by his classmates as long as they shall live." — Amen, say we of his Class at M.I.T.

Edwin Keith, II, died at his home, 515 Lakeside Drive, Bridgewater, Mass., on January 10. — Again a letter addressed to Jim Barnes, VI, father of the class baby, at the last known address has traveled all over the country and been returned without finding him. Evidently Jim's out of step now. Can anyone furnish information as to his whereabouts? — Carlton E. Atwood, VI, has moved to 173 Newbury Street, Boston. (Curtis, please take notice). — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 75 State Street, Boston, Mass.

1906

Some time ago we remarked in this column about our reactions to obtaining post cards from fortunate classmates in Florida and other warm climes while the February storms were howling about our windows. This may have discouraged the usual post cards this winter, for none was

1906 Continued

received from Florida. However, we understand that two of our regulars, namely, Ralph Patch and Henry Ginsburg, had their usual mid-winter vacation in the sunny South. As customary, Ralph and Mrs. Patch went South about the first of February. The Patch's visit was shortened this year by Ralph's responsibility as chairman of the school board for the town of Stoneham. From his description and from extracts from the town paper, we judge that Ralph has quite an assignment, as things apparently are not all serene within the school committee of Stoneham. Frank Benham happened to be in Central Square, Cambridge, just before Easter and dropped in to Henry Ginsburg's place of business to have a word with him. Frank was advised that Henry had gone South and would not be back until after Easter.

The Boston *Herald* of April 26 included an account of the students at Bradford Junior College entertaining their fathers on April 25 at a special fathers' celebration. Included among those present was C. A. Farwell of Sharon, who was the guest of Miss Mary Farwell. — On Friday and Saturday, May 20 and 21, the New England Intercollegiate Golf Championship was held at the Oakley Country Club, Belmont, Mass. Among the contestants was Charles Wetterer '38. This young man attained the distinction of getting a hole in one and coming within inches of securing a second hole in one, all on the first day of the tournament. Young Charles is a member of the M.I.T. golf team. Walter Benham, a junior at Bowdoin, played with a Bowdoin contingent at Oakley.

At this time, the Secretary wishes to thank the members of the Class who participated in the Alumni Fund. Although the results of the drive have not been up to expectations, the Class, as usual, held its own with the other Classes. The Secretary particularly acknowledges the work of Sherman Chase, who was responsible for the campaign in the Boston district. — JAMES W. KIDDER, *Secretary*, Room 802, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills, Mass.

1907

First-place mention in our notes this time is going to the son of one of our classmates: Harold S. Wonson, Jr., 19-year-old son of our Class Treasurer, is attracting unusual attention at Dartmouth and in the Boston press because of his athletic prowess. In the Boston *Traveler* of May 6 appeared a 12-inch column article headed, "Wonson has had unusual sports career for Green," which told of his baseball experience at Tabor Academy, preparatory school, where he pitched on the nine for three years and was captain for the last two. The story continues: "When he came to Hanover, he kept right on with his pitching and as a freshman won two and lost none while he was earning his numerals. He also competed in track and cross-country, winning his second set of numerals in the

latter sport. During the past winter he ran on the one and two-mile relay teams, regularly turning in his quarter on the mile team in about 51.5. In addition he entered several mile races, and his best time is a creditable 4.24. Wonson's biggest thrill to date in the running world came last winter when he helped pace Glenn Cunningham to his 4.04.4 world's record. Wonson set the pace for the last half-mile and received high praise from the great Glenn for his help. Whenever the race is mentioned today, the modest Big Green runner breaks into a grin.

This is his first year on the varsity under Coach Jeff Tesreau. But he started off his career in spectacular fashion by winning one ball game and losing another the same day. This was in the double-header with Princeton at the start of the season. When Wonson entered the game with the score tied at 4-4, in the last of the seventh one of the Princetons lofted a drive to the outfield which was misjudged and resulted in a home run, the winning run for the Tigers. Wonson, however, worked the whole of the second game and the Indians won, 14-3. From the Princeton games, Wonson went on to face Holy Cross. He allowed only seven hits, but failure of his mates to solve the Purple hurler lost the game, 4-2. Against Yale he again went the full nine innings; and although he only gave eight hits, weak defensive play and lack of punch was disastrous. In Wednesday's game against the favored Brown nine, Wonson wasn't called on to pitch until two men were out in the eighth. With the Green behind 3-2, Wonson held the Bears scoreless until the end of the encounter. In the Dartmouth half of the ninth with no outs and Joe Pyrotek on base running for Charles Tesreau who had just singled to short right, Wonson hit a terrific homer to center field to win the game."

In the *Traveler* of May 18 was a picture of young Wonson in pitching pose, with the caption, "Hail to the Chief," above, and below these words: "Here is Dartmouth's sophomore pitching prodigy, Hal 'Chief' Wonson, who recently twirled a two-hit game against Cornell, equalling an Eastern Intercollegiate league record, and yesterday stepped in and saved the Green from a defeat by Vermont. Wonson will pitch against Harvard Saturday. He is a hitting pitcher. At Dartmouth they are singing that popular song, claiming that it is dedicated to him, 'Wonson a while.'" — Something of a precedent, we grant, to give so much space to a son of '07, but as the case is unique, and as our own Harold is so well known, we believe we are justified.

In the Boston *Herald* of May 7 a news item told of an addition to be made to the Littleton, Mass., grammar school. The last sentence read: "A town appropriation, a PWA grant of 45% of the total cost, and the generosity of G. Edward Prouty and Mrs. Ethel B. Prouty have made the addition possible." This, of course, is our Ed Prouty and his wife. — In the May Review we told of calling on Charles M. Curl. Early in May, Curl and

his wife announced the engagement of their daughter, Vega Curl, Radcliffe 1931, to Chester U. Stevens of Melrose, Mass., a Harvard Engineering School graduate of 1933, with a master's degree in 1934. — Remember Lloyd R. Fredenhall who was the dapper adjutant in our freshman drill days? He is now colonel in the United States Army, stationed at the infantry school at Fort Benning, Ga.

Through the courtesy of Charles E. Locke '96 we have learned that John C. Kinnear, general manager of the Nevada Consolidated Copper Corporation at McGill, Nev., and his smelter superintendent, Leonard Parsen, are reported to have been issued final patent for a process to effect selective furnace converting of copper matte. — Professor Locke also tells us that Lawrence C. Hampton and his wife, Lucille, announce the arrival of a daughter, Nancy Jeanne Hampton, on March 28. This is their second child, a son having been born on November 29, 1936. Our congratulations, Lawrence! It is unusual for us to have the opportunity of recording the birth of '07 children.

Since October the Secretary has been associated with another man with 25 years of experience in machinery selling. We do business under the name of Equipment Specialties Company, with office at 30 Kilby Street, Boston, and are sales representatives for some specialties in machinery, including a complete line of air and hydraulic operating and control valves and several items of metalworking equipment valuable in production, tool-rooms, and maintenance in machine shops and industrial plants.

The names of 13 '07 men appear in the 1936-1937 edition of "Who's Who in America." Here they are: John G. Barry, geologist, El Paso, Texas; E. Leon Chaffee, professor of physics at Harvard; Allan R. Cullimore, President, College of Engineering, Newark, N.J.; John A. Davis, chief engineer, information division, United States Bureau of Mines, Washington, D.C.; John Evans, President, First National Bank of Denver, Colo.; Hudson B. Hastings, professor of industrial administration at Yale; Ralph G. Hudson, Professor of Electrical Engineering at Technology; Edwin W. James, chief of division of highway transport, Bureau of Public Roads, Washington; Alexander Macomber, consulting engineer and manager of public utilities, Boston; Frederick T. Moses, President and Treasurer of three mutual fire insurance companies, Providence, R.I.; William G. Perry, noted architect, Boston; Frank C. Stockwell, head of the department of electrical engineering, Stevens Institute of Technology, Hoboken, N.J.; James L. Walsh, Executive Vice-President of Detroit National Bank, Detroit, Mich.

Several of these names are in "Who's Who in Engineering," as listed in the June Review, and all except Walsh have been mentioned in our notes during the past year. Walsh was associated with us at Tech from 1903 to 1905, when he entered West Point and was commissioned second lieutenant in 1909. He advanced through the grades to colonel and retired

1907 Continued

from the Army on November 4, 1922. He was connected with Bankers Trust Company, New York, from 1922 to 1927; became vice-president of McGraw-Hill Publishing Company; and in 1928 went to Detroit with the Guardian Detroit Union Group of banks.

A little additional time at the library enabled us to discover in "Chemical Who's Who," 1937 edition, the names of six classmates. Among these is William H. Bradshaw, director of rayon research at Du Pont Rayon Company, Buffalo, N.Y. From 1907 to 1912 he was superintendent of Eastern Reclaimed Rubber Company; from 1912 to 1922 with Main Belting Company successively as chemical engineer, factory manager, and development manager; then for two years was chemical engineer with Cupra, Inc., and in 1926 went with Du Pont. The other five '07 men in "Chemical Who's Who" are Charles R. Bragdon, who since 1934 has been chemical engineer with International Printing Ink Corporation at New York; Hermann W. Mahr, superintendent of indigo and heavy chemicals departments of Du Pont Dye Works at Wilmington, Del.; Herbert G. Spear, sulphite pulp superintendent for Brown Company, Berlin, N.H.; Sidney D. Wells, consulting chemical engineer and advisor to the pulp and paper industry, at Combined Locks, Wis.; and Richard G. Woodbridge, Jr., chemical director, smokeless powder department, for the Du Pont people at Wilmington, Del. — BRYANT NICHOLS, *Secretary*, 126 Charles Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

As we come to the close of another collegiate year, the feeling still persists that somehow or other there ought to be a way to enlarge the scope of our class notes to include more of the classmates than has been possible in the past. For the kind coöperation of those who have forwarded information to your Secretary, many thanks! I realize that many of us are so located that contacts with Technology are few and far between, and unless some interest is aroused the tendency is to drift further and further away. Technology, and particularly the Class of 1909, wants you to feel that you are just as vital a part of the group as you were 30 years ago. Let's not give up that association. Write to your Secretary and tell him all about yourself, your job, and your family. And above all, start planning now to join us in June, 1939, at our 30th reunion, plans for which are underway.

It is with deep regret that we record the passing of William Duncan Green on May 4, at his home in New Rochelle, N.Y., after a brief illness. It seems only yesterday that I saw Green at the class spring luncheon at the Technology Club of New York — just the same Duncan Green that we knew at M.I.T. William was a regular attendant at these class affairs and will be sorely missed by all. Always of a cheerful, sunny disposition, it was a pleasure

to meet him, and as Paul Wiswall puts it: "Our acquaintances have now ripened into friendships. Dunc spent all his life with the smell of printer's ink in his nostrils. His father, William Green, was one of the best-known printers in New York, and Dunc went into the firm when he came back from Boston after graduation. Mr. Green, Sr., was particularly active in work among the employing printers in New York. Dunc was president of William Green, Inc., for several years. Recently he was with the Kalkhoff Press. At the funeral there was a large delegation from among Dunc's associates in the printing industry. . . ."

William was a second lieutenant in the Infantry during the World War and was a member of the Advertising Men's Post, American Legion, in New York. Surviving are his wife, the former Miss Gertrude Jenkins, of Pittsburgh; three children, William Duncan, Jr., Lora, and Cynthia; and a sister, Miss Annie L. Green, of New Rochelle.

Paul continues: "Lately I have felt particularly close to Dunc because his boy, Bill (William Duncan Green, Jr.), is graduating from the New Rochelle High School this June, and Dunc and Bill have had several sessions with me to talk about Bill's plans for his college courses. I am happy to tell you that I have heard from Bill since Dunc's death, and the plan for Bill to enter college this fall will not have to be changed. It was Dunc's hope that Bill might go to one of the schools like Wooster, Williams, or Middlebury for part of the six years he is to spend in college; and then Bill will come to the Institute for his final college years and get his degree from Technology. Bill is a fine-looking, thoughtful boy who will get on in college, I am sure. And I am sure all of Dunc's friends wish Bill well in his college courses and hope he will get his degree from Tech with flying colors."

William Wells is doing research work in the department of bacteriology in the University of Pennsylvania. His investigations have included the sterilization of air by means of the ultraviolet-ray lamp. — Chet Dawes was one of the speakers at a Combined Professional Societies dinner meeting, held in Walker Memorial, M.I.T., on April 26. Chet is nominee for vice-president of the American Institute of Electrical Engineers.

On April 9 some 250 fellow employees gathered at Sartoris Roman Gardens to fete Hardy Cook, director of personnel of the Brooklyn Edison Company, upon completion of 25 years of service. A photograph of the occasion, which appeared in *Around the System*, published by the Commonwealth Edison Company of New York and affiliated companies, shows Hardy with his never failing smile and also Achard '13 and Steinberg '22. — George M. Gadsby is president and general manager of the Utah Power and Light Company, with headquarters at Salt Lake City. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1910

The following has been taken from the May issue of *Western Construction News*: "R. M. Gillis, for the past five years District Engineer of the California Division of Highways with headquarters at Fresno, was recently appointed to the position of construction engineer, as noted in the last issue. Mr. Gillis will fill the position left vacant by the death of C. S. Pope. A graduate of M.I.T., the engineering experience of Mr. Gillis includes extensive highway work in the State of Washington prior to his joining the California highway organization in 1929. His first position was that of assistant district engineer, which he held for a few months before being promoted to the position of assistant construction engineer at Sacramento headquarters. In 1935, he was promoted to the position of District Engineer (VI), with headquarters at Fresno. His present return to Sacramento headquarters, as construction engineer for the Division of Highways, brings to this office experience obtained from both field and headquarters service."

Kenneth P. Armstrong's name again appears in print as noted in the following excerpt from the *Washington Herald*: "Kenneth P. Armstrong, president, Washington chapter, American Association of Engineers. Certain stubborn idea that man with opinions about community affairs had better try doing something about them himself has put him in thick of some hot civic battles. And in van of District suffrage movement. On executive board D. C. Suffrage Council, sponsoring April 30 plebiscite. Elected to head engineers with prime object of pushing registration laws for engineers here. It appears that the ease with which anyone with notion may call himself engineer with variety of fancy prefixes is painful to users of transit and slide rule. Proper bearers of title want status with lawyers or architects prevailing elsewhere. He's Somerville, Mass., native, graduate of M.I.T. 1910. Here since 1916, and in same house. Past president of Burroughs Citizens Association, he's chairman of city planning committee of Federation of Citizens Associations. Architectural engineer with Treasury Procurement Division, desk engineer from beginning. Had ten years in own real estate and building business. Has headed M.I.T. alumni here, holds high Masonic offices. Has a wife, two sons, and a grandson. All the civic affairs to which he puts shoulder give him all release from daily work he wants. If you don't count flower gardening." — HERBERT S. CLEVERDON, *Secretary*, 46 Cornhill, Boston, Mass.

1911

It happened in April. Yes, sir, that White-Borland announcement made last month in these notes was no mirage, for early in April Miss Rosamond Borland and Peter Desmond White were married at 14 East 90th Street, New York City, the home of the bride's mother, Mrs. William Gibson Borland. Then on May 1 — Socialists' Day the world around — the

1911 Continued

Whites made it Social Day and were at home from then on at 430 East 57th Street in the Big Town.

Two of our leading 1911 industrialists recently made extended business trips to European countries: Don Stevens, II, Vice-President of The Okonite Company, Passaic, N.J., returned in late April, and Fred Daniels, VI, President of the Riley Stoker Corporation, Worcester, Mass., in early May. Both of them have graciously and promptly complied with my request for observations—acts that gladden the hearts of Class Secretaries. Let's listen to Don Stevens' comment on his trip: "The usual accounts of travels abroad are not interesting to the people who read them. However, the least that I can do is to comply with your request and tell you that I visited England twice, France twice, spent ten days in Germany, and a week-end in Holland. I found green grass and blue skies in all four countries. In other words, I found that the world would be quite a decent place to live in if man would stop bungling the Lord's handiwork."

"Economically, nothing seems very sound or sure in any country. From a business standpoint, Germany has no unemployment, no labor trouble, and her factories are running full. England is in fair condition with still considerable unemployment but a large rearmament program. Holland remained the same little wealthy country, but business was not very good. In France business was very spotty, and there were plenty of sit-down strikes. Politically, there was considerable war talk when we arrived in March and a rather complete feeling that war would be very remote when we left in late April. The fact that England has given up her policy of pacifism and has gone in for a thorough arming gives everybody in that country, and in fact all over Europe, a feeling of steadiness. Germany was very hospitable to us. We had no trouble there whatsoever, and although the economies are entirely unsound, I am sure that the people are far happier with their leader than they were without a leader. They are not all being sent to concentration camps in spite of all the propaganda that one hears in our press. It was difficult to decide which country was more volatile, France or America. Both are pulling themselves apart with the divergent views of their respective populations. But either country would pull itself together in any time of national ordeal. My trip was a business trip, and among other things I visited 14 cable factories and arrived home well satisfied that we are not behind the times in the art of cable making."

Here are terse comments by Fred Daniels concerning his trip: "England is very busy with her rearmament program. They are getting ready there to hit back the next time someone slaps their face. One of their basic ideas is to have anywhere from a year's to two years' supply of raw materials on hand at each factory, in cases where these raw materials come from outside the country. Another scheme is to put in the so-called shadow factories

alongside existing plants. For example, suppose there is an existing machine shop fully equipped and manned for producing a product which is nonessential for war purposes. The government builds a factory alongside, fully equipped with machine tools and ready to run. As soon as there is any difficulty, the men go over from the existing plant to the shadow factory and start manufacturing war materials. Taxes are very high in England, but they do manage to balance their national budget. Business in France is very poor. No one knows what way they are going or what may happen next. The labor union and communistic difficulties are so severe that the poor businessman is completely discouraged. The recent devaluation of the franc may help foreign trade for a while but eventually it can lead only to trouble."

"Italy, where we spent most of our time, is busy and happy on the surface, and the Italians all appear to be right behind Mussolini. The poor dictator, however, is always in trouble because he must pull a new trick every now and again in order to maintain interest. The Italians report that his popularity was going down until he started the Ethiopian war. Then after that novelty wore off, he sent troops into Spain and jazzed up the people with prospects of Italy regaining the position it held in the Mediterranean under the Roman emperors. The Italians are now worrying about the high taxes due to the excessive cost of war in Spain and the new rabbit out of the hat is the Rome-Berlin axis. I left Italy just before Hitler's visit, and the country was full of German tourists. The Germans are not popular with the Italians because they do not spend much money and do not have big enough tips. Also, they are inclined to sneer at the Italians being an inferior race. The Rome-Berlin axis can never be a permanent thing, for the Nordic and the Latin races do not naturally mix. Our daughter, Eleanor, is spending her junior year with about 30 other girls from Smith College studying at the Sorbonne in Paris. Mrs. Daniels and I took Eleanor and her roommate to Italy for a two weeks' motor trip and then put them on the train to return to Paris. The weather was cold all the time we were gone and we had a rough trip going to England and returning from Naples to New York."

Thanks a lot, Don and Fred, for two fine letters. And here is a recent newspaper clipping from the Newark, N.J., *Evening News*. It gave me a big kick and I hope you like it—it's Bill Orchard all over, if you ask me: "Bet Sally Orchard of Maplewood never forgets her seventeenth birthday. Her father, William J. Orchard, had promised her a second-hand car to celebrate her coming of automobile license age and the family joke for two years has been that it would be of 1914 vintage. When the big day rolled around last week, Sally was awakened by sounds of police and fire sirens. Jumping into her clothes, she rushed down to see what all the tooting was about. In front of the house were a fire engine and a cavalcade of 14 private and police cars escorting a

1900 Maxwell runabout which actually had climbed the Sagamore Road hill under its own power. Mr. Orchard presented the relic to Sally with a speech of birthday congratulations and suggested she try it out by driving around the block. When she had made the circuit what did she see but a robin's-egg blue convertible coupe with a radio and every last word in accessories. Of course the coupe was the real birthday gift and the Maxwell parade was just a joke staged by Mr. Orchard and his friends. Sally is so thrilled with her car she's only separated from it at bedtime."

Mr. and Mrs. Thomas H. Haines of Sheffield Road, West Newton, announced, in late April, the engagement of their daughter, Marjorie, to Mr. Leonard Gage James, son of Mr. and Mrs. Charles C. James of Bayside, Long Island. Among our sons and daughters it is also nice to note that young Jack Herlihy '39 has been elected president of the M.I.T. Catholic Club for 1938-1939, and Oswald Stewart, 2d, '39, has been named chairman of the budget committee of the Institute Committee. Charlie Hobson, Jr., '39, is manager and a playing member of the Institute golf team. He arranged a mixed Scotch foursome with Wellesley College in mid-May and because of a shortage of caddies he announced that the six most handsome fellows who applied would be given an opportunity to serve. The day the match was scheduled was rainy and 16 competitors for the caddying were disappointed. Later in May the match was put on, but not one caddie candidate showed up—the boys had to carry their own bags!

We're glad to have Ted Parker of Knoxville now a representative-at-large for two years on the Alumni Council. — It's also a pleasure to announce that Doc Davis, VI, has gone up a peg in the United States Army and it's now Lieutenant Colonel Henry C. Davis, Jr., Coast Artillery Corps, Hawaiian Separate, Fort De Russy, T. H. — Among the missing for some time, we have also recently located Bill Shepherd, VI, at 3803 Van Ness Street, Northwest, Washington, D.C. As you finish reading these notes, try a bit of introspection. That's it — write to Dennie! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1912

Angus R. Hammond now makes his headquarters at the Hotel Sutter in San Francisco, Calif. He travels much of the time in connection with his work for an insurance company carrying workmen's compensation in the mines and heavy industries. As he has about a hundred mines to inspect every two months, he covers California from end to end. — Karl T. Compton spent part of his vacation last summer with Robert S. Cox at the T Cross Ranch in northwestern Wyoming. I have just received a booklet showing photographs of Bob's ranch, and it certainly is attractive. Only wish I could put in a month there myself. — We wish you all a pleasant summer and

1912 Continued

close with the request that you find time to write us, so that 1912 notes will be better next year. — **FREDERICK J. SHEPARD, JR.**, *Secretary*, 125 Walnut Street, Watertown, Mass. **DAVID J. McGRATH**, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N.Y.

1914

The barrage of letters that went out in connection with the Alumni Fund Drive seems to have scared off all other correspondence with your class officers. News this month seems to have disappeared altogether. There is no use crying about spilled milk, but next year would be a lot more pleasant for your class officers if each of you would drop a line to one of them occasionally. Less than a year from now we celebrate our 25th reunion. Why not start now writing to one of us telling how and where you think this event should be celebrated? As the 25- and 50-year classes have a special part in the Alumni Day program, that day should be included in the general plan. The 25-year classes recently have been holding their reunions near Boston in order to facilitate attendance at Technology on Alumni Day.

Ray Dinsmore seems to have the lead on European travelers this year by sailing for points east on May 1. The bets are that Ray is starting out early to collect a fine set of international stories for the reunion next year. — **H. B. RICHMOND**, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. **CHARLES P. FISKE**, *Assistant Secretary*, 1775 Broadway, New York, N.Y.

1915

Have you done your bit for the Alumni Fund? Send your check now. Eighty-two classmates have subscribed \$5,928.50, an average of \$72.40 per donor or \$12.55 per capita, with 17.3 per cent of the Class subscribing. Let's whoop 'er up to lift these figures to higher marks.

Fiske R. Jones was recently elected vice-chairman of the Worcester section of the American Society of Mechanical Engineers. Congratulations to this classmate in his professional-society activities. — A Boston paper of April 20 carried a three-column picture of Whit Brown, Concord, Mass., selectman, receiving a message from the mayor of Boston from a horseback rider representing Paul Revere on his famous ride from Boston to Concord. The picture actually looks like Whit. We may have the Class crashing the films with such good-looking men.

Ah, me! I've bravely kept our column going all year and I leave you now in this last issue with best wishes for fun and success this summer. Someone be good enough to "help Azel" with notes and news for the opening fall issue. — **AZEL W. MACK**, *Secretary*, 40 St. Paul Street, Brookline, Mass.

1916

The Boston *Herald* of April 17 carried a notice of Steve Whitney's engagement to Miss Charlotte Jane Altemus of Hart-

ford, Conn., and San Diego, Calif. The notice goes on to say: Miss Altemus is a graduate of Miss Fuller's School at Ossining-on-Hudson, N.Y. She made her debut at a brilliant ball in Hartford several years ago and since then has traveled extensively. Mr. Whitney is a graduate of M.I.T. and is associated with the Hollingsworth and Whitney Company, paper manufacturers, which was founded by his grandfather, Mr. Leonard Whitney. — **J. D. REEN**, VI, who left at the end of our junior year at the Institute, dropped in to visit with me early in May. He is living in Springfield, Mass., at the present time. Much of his work in recent years has been in structural design, which has kept him pretty much in the state of Pennsylvania.

Lew Pratt comes to our rescue at a time when there is a dearth of class news, with the following interesting communication: "Just a few lines in longhand after the stenographic force has quit for the day. I am, as has been the case for the last ten years, connected with Henry Prentiss and Company, machine tool dealers, located at the Chrysler Building, New York. Until my recent move to Mamaroneck, I have been located at Schenectady, spending much time at the General Electric, American Locomotive, and other local shops, with trips from time to time up and down the river as far as Canada and New York City, respectively. I am still doing just that but am operating from another base. Now I go up, then down where I have been going down, then up.

"I have neither seen nor heard from any M.I.T. men since the reunion. Please tell George Petit that I have had every intention of driving up to see him as I promised to do but as yet have not even started in that direction. Moving and present unsettled business conditions have interfered with the usually somewhat flexible routes over which I drive. I did give George's address to Lou Eberts, one of our Hartford men, feeling that if they were to meet, they would find much in common. . . . Is there such a thing available yet as a list of where the various '16 men are located, and so on? If so, I would like a copy. In the meantime I would be glad to see you or any of the other men who happen to be foot-loose around here. Telephone MUrray Hill 9-6492."

In conclusion, with deep regret your Secretary records the death of William S. Freethy, II, on April 22 at Phoenix, Ariz. Your Secretary would welcome the story of William Freethy's career for publication in these notes in an early fall number of *The Review*. — **JAMES A. BURBANK**, *Secretary*, The Travelers Insurance Company, Hartford, Conn. **STEVEN R. BERKE**, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

1917

The Assistant Secretary dropped a hint that the office of the chairman of the Summer Session Faculty at the Phillips Exeter Academy was extremely busy at

this time of year; could the Chairman therefore please be relieved of the collection and writing of any notes at this particular time? Then along with his letter he incloses correspondence that lends a fresh touch and needs no editing.

The first is from Richard Hardwick of 24 Federal Street, Boston: "My apologies for not replying to your letter sooner. Bea and I have been in California on vacation, and although we have been home for a few weeks, I am just getting around to some of my correspondence. It is unfortunate that the few times I have been in Exeter you have happened to be out, but I have every expectation of seeing you soon. My activities since I removed my second lieutenant's uniform in 1919 have been confined to the investment and brokerage business and, like many others, have been through its ups and downs at a considerable cost from a financial standpoint but acquiring, nevertheless, experience which is very valuable. At present I am associated with E. A. Pierce and Co., stock and commodity brokers, and anxiously awaiting the big boom forecast by F.D.R. I have watched with interest your advancement at Phillips Exeter Academy. It is indeed a pleasure to see an old friend progress, especially in such a fine profession at such a magnificent school and in what I consider one of the most beautiful towns in the world. In this my envy is exceeded only by my sincere wishes for your continued success."

The second letter is from another denizen of the financial community — Augustus P. Farnsworth. Gus writes for Phil's consideration of the son of a friend who is about to enter Exeter and adds: "Many times and oft I have recalled the days last year at Marblehead when we old '17 men got together. Like well-made whisky, aging certainly enhances the flavor and enjoyment of friendships formed in earlier years. It was great to see you last June and I hope we can materially shorten the time interval between meetings from here on. Tear off this letterhead and place it in your wallet the next time you come to New York and please call me up for a visit. My home address is Binney Lane, Old Greenwich, Conn., and if you are driving through or near that part of the country, please drop in on us."

A recent news item tells of the opening of a new ship repair plant for the Port of Boston by the Boston Dry Dock Company at Chelsea, Mass., as announced by the President and General Manager of the new company, G. Hobart Stebbins. They have recently acquired the shipyard tools and equipment of the Richard T. Green Company and the entire Winnisimmet shipyard. — **RAYMOND STEVENS**, *Secretary*, 30 Charles River Road, Cambridge, Mass. **PHILIP E. HULBURD**, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

1918

Figuring on a shorter haul to reunion, Harold Fitch moved from Albany, N.Y., to West Hartford, Conn. — Wendell Kayser moved from New York City to

1918 Continued

Elmhurst, Long Island. We suggested that Wendell drive down to Orient Point and take the New London ferry as there wouldn't be anybody on it on June 24, on account of the Harvard-Yale boat race on the river.

Alfred B. Vought wanted to come but found the Netherland East Indies a difficult place to start from. With memories of Tubby Rogers' English class held in some now-forgotten room of the old Trinity Place buildings, jostling the uncertainties of the boiler explosions Eddie Miller '86 detonated in Room 3-370, Al says: "... I sit before my portable, torn by the problem of where to begin, what to tell, and how much. . . . I find the class notes and incidentally The Review very stimulating since coming to the Far East. It seems to me that you will be making plans for the 20th reunion of the Class. . . . Distance being what it is, I will have to forego the pleasure of joining in. We expect to be back in the States in the summer of 1940 and will look you up then.

"We are located at Soengei Gerong, which consists of the refinery complete with all attending facilities, including a large European community of 125 houses, of which about 20 are occupied by Americans. We are situated about six miles downstream on the Moesi River from Palembang, one of the oldest cities of Sumatra. It has a population of 110,000, of which 2,500 are Europeans, the balance being native Malays, Javanese, Chinese, and a sprinkling of other races. We are two to three degrees below the Equator and almost precisely 180 degrees from New York. Singapore is about 400 miles away — 36 hours by boat and a little over two hours by plane. We enjoy three-day per week air service to the channel ports of Europe, so that mail gets to us in about 10 to 12 days. I will spare you a description of the refinery, but if you have a loose moment you will find a word picture in the December 30 issue of the *Oil and Gas Journal*.

"We have recently returned from vacation at Brastagi in north Sumatra. It is a very popular resort for people on holiday from the Straits Settlements. The elevation is about 4,500 feet, and the temperature averages between 65 to 70 degrees F. This represents a welcome change to us, as at Soengei Gerong we hit the high 80's consistently, and of course it gets very hot in the sun. The scenery at Brastagi reminded us very much of New England. It is mountainous and there are many evergreen trees. The automobile roads are excellent for this part of the world. Many long and interesting auto trips are possible, as the plateau on which Brastagi is situated extends for miles. The mountains are high and interesting. If you are a climbing enthusiast, there is plenty to absorb your energy, though I saw none of the Alpine variety.

"Our son, aged 12, is located in an English school near Brastagi. They have nearly 100 children ranging in age from six to 16. Most of them come from the Singapore district and from the English rubber, tea, and coffee plantations near

Medan. Recently quite a group of American children joined the school due to the unsettled conditions in China.

"We find life interesting, although it is different from the States. We had a struggle learning enough Malay to get things done around the house, but after a few months a relatively small vocabulary works wonders. Of course, you are not able to carry on any deep philosophical discussions but you can get a cup of coffee and perhaps some fried eggs to go with it. My biggest kick in pursuing the dictionary was to learn that Mata Hari (of World War spy fame) was a real Malay name and means eye of the day or sun. And the surprising find was the quantity of American goods that are sold here. Cosmetics, toilet articles, razor blades, shirts, canned goods, and so on. About the only things that you cannot get are shoes. Bata from Czechoslovakia seems to have a monopoly. The only trouble with most of the stores (*sokos*) is that they are out of stock when you wish to buy."

Al speaks of his 12-year-old. Well, the first prize of one secondhand text on the electrolytic dissociation theory goes to Kilgore, whose 1918 model, Harold Dustin, Jr., is a sophomore in the Chemistry Course at M.I.T. Papa, you will remember, hailed from Gloucester and has a diploma saying he's a civil engineer.

As these last columns for the year go to press, I cannot refrain from a comment regarding our meager part in the Gymnasium Fund. My sympathy to the man who said: "You ask for two weeks' pay. As I have no income and need \$20 a week to support my family, I trust you will promptly remit for two weeks' expenses." My ill-concealed emotions for the wealthy manufacturer who gave one lonesome, pathetic little dollar just to get his name off the list of prospects. My regrets that the rest of us were not able to do more than we did.

When you receive this, our 20th reunion will already be only an unalterable memory. If you missed it, your life has been irremediably impoverished. For details, put in your order for "The Repeal of the Eighteenth Amendment." — F. ALEXANDER MAGOUN, *Secretary*, Room 5-117, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1921

Again The Review completes another volume with this issue, and we regretfully take leave until the Editors resume their glorifying of the fourth estate next November. In the interim you will be gently reminded of Alumni Association dues, and it is our sincere hope that when you reply you will include a personal item to aid your Secretaries in continuing the job you expect of them. Write a line or write a letter; just tell us where you hang your hat or make a complete engineering report on the last 17 years — but write!

Harry Cole, St. Louis consulting engineer, comes to the fore with an outstanding new engineering theory in com-

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bination with architectural design to produce a new standard of construction. As disclosed in the United States Patent No. 1,997,809, issued April 16, 1935, Harry has evolved concrete-steel building units which can be supplied in wall, floor, or roof sections. Speed of construction and economy are but two of the many advantages of the Haco construction method, and its flexibility is such as to be adapted to various period designs other than the modern. In describing his type of prefabrication, Harry writes: "Any structure made of two or more different kinds of materials having the same coefficient of expansion, cast or molded together to form a physical unit of construction, is called a composite section in accordance with the Haco system of framing. A composite section will act as a monolith under stresses when subjected to external forces. The stresses in all the materials forming such composition must therefore be proportional to their respective deformations below their elastic limits in order to be subject to analysis under the ordinary laws of elasticity. The Haco building unit is a composite structure in the sense as defined and will take all the loads to which it is subjected, the steel and concrete acting together as a homogeneous unit. This is made possible because the slabs are welded directly to the steel framework of the building. Arc or spot welding, as required, is used to distribute the stresses properly."

Through standardization a five-room house can be erected in two to three days after completion of the foundation, exclusive of interior finish and trim. Lead calking insures strong, waterproof joints, while air spaces and fireproof insulation cut the heat loss to one-fourth that of a 12-inch solid brick wall. The use of six-inch walls adds an extra thousand cubic feet to the conventional house, in comparison with the use of 12-inch solid brick walls, and the cost is only 25 cents to 30 cents per cubic foot for homes and less than that for commercial or apartment buildings. The Haco Company, 100 North Broadway, St. Louis, Mo., has been organized to handle this new development. A model home is now on display in St. Louis, where, incidentally, Haco Harry makes his home at 5336 Enright Street.

The trail of the more nomadic members of the clan brings the following new addresses: Donald B. Carter, XV, 2174 Main Street, Glastonbury, Conn.; Dr. Ivan F. Chambers, X, Greenway Apartments, 34 Charles Street, Baltimore, Md.; Ormond W. Clark, XIV, Owl's Head, Maine; Commander John D. Crecca, XIII-A, Bureau of Construction and Repair, Navy Department, Washington, D.C.; Thomas J. Homer, Jr., I, Sherborn, Mass.; William H. Hopkins, Jr., XIII-A, 259 Avenue E, Bayonne, N.J.; C. Harry R. Johnson, II, 27 Scarborough Road, Manchester, Conn.; Francis J. Keenan, X, Lit Brothers, 8th and Market Streets, Philadelphia, Pa.; Commander James L. King, II, U.S.S. *West Virginia*, care of the Postmaster, San Francisco, Calif.; Howard Le Fevre,

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III, New Castle Products, Inc., New Castle, Ind. (Name your New Castle products for us, Moose.)

Other up-to-date addresses include: John B. Mattson, VI, 69 Sargent Street, Winthrop, Mass.; Romney J. Mellen, III, 3731 Fort Boulevard, El Paso, Texas; Charles F. Parker, XIII, E. B. Badger, 271 Madison Avenue, New York, N.Y.; Dorothy R. Pierce, VII, 1624 Neilson Street, Utica, N.Y.; Clarence H. Powell, Post Office Box 532, Farmingdale, N.Y.; Charles W. Richards, X, 26 Kenduskeag Avenue, Bangor, Maine; Vernon H. Sanders, X, 118 Lombardo Street, St. Marys, Pa.; Hugh D. Seaver, IV, 11409 Glenwood Avenue, Cleveland, Ohio; Christopher L. Tortorelli, VI, 520 West Taylor Street, Chicago, Ill.

Our hearty thanks to those who have helped during the past season and a pleasant summer to you all! — **RAYMOND A. ST. LAURENT**, Secretary, Rogers Paper Manufacturing Company, Manchester, Conn. **CAROLE A. CLARKE**, Assistant Secretary, 10 University Avenue, Chatham, N.J.

1922

If any of you have been called upon to give an impromptu speech on a subject about which you were absolutely ignorant, you can sympathize with the way your Secretary feels as he endeavors to get some notes into The Review. The reporting has been poor this month, and the Assistant Secretaries are hereby gently but firmly reprimanded for hiding all of the interesting facts about the Class.

Yard Chittick represented the Class at the April 25 meeting of the Alumni Council in Walker Memorial, and Karl Wildes attended as representative of the Technology Club of Schenectady. We congratulate Eric Hodgins on his recent election to the Alumni Council as representative-at-large for two years.

Milt Manshel, XIV, is active in the affairs of the Technology Club of Northern New Jersey. He is married, has two boys, and lives in West Orange, N.J. He is vice-president and treasurer of the International Ticket Company, and Milt says that if you give him advanced warning he will print up a few extra tickets for the World's Series. — **Leslie Price**, IX-B, lives in Fairlawn, N.J., where he is division meter chief for Public Service Electric and Gas Company, which means that if you live within a reasonable distance, Les will be glad to pay you a visit and adjust your meter to suit your pocket-book. He also is married and has two children. — **Bryan Powell**, II, lives in Summit, N.J., but commutes to New York daily where he is vice-president of Stephen A. Powell and Company, paper jobbers. Bryan married before graduation and has taken it seriously. He reports that six children are no cinch to support, even in the paper business. — The foregoing information has been gathered by **Larry Codding**, VI, who stands forth as a shining example of the way an Assistant Secretary should perform his duties. — **CLAYTON D. GROVER**, Secretary, Whitehead Metal Products Company of New

York, Inc., 303 West 10th Street, New York, N.Y. **C. YARDLEY CHITTICK**, Assistant Secretary, 77 Franklin Street, Boston.

1923

By the time these notes appear, the 15th reunion will be long over, but the business of rounding up the gang for this party has brought in a lot of useful class notes. There isn't room to discuss in one month's copy the doings of more than a small number of those who wrote in, so the following will be limited to those who indicated that for one reason or another they would be unable to get to Old Saybrook in June. We had a generally good response to the appeal for class dues. In the letter asking for this remittance I offered a chance to those responding to tell what they had been doing, what they thought of the government and other things that might seem important to them at the time. There was practically universal comment that what they might have to say about the government would burn holes in the paper. A few connected with government agencies politely side-stepped the question.

James K. Clapp extends an invitation to all the gang to visit General Radio in Cambridge where he works. There he says you can see the latest in electronic equipment. — **R. R. Dresel** reports that he can't get East this summer because he is enlarging his home. He is in the general insurance business in San Francisco where he has been for the last 13 years. He has three children: **Ralph**, aged ten; **Nancy**, seven; and **Margaret**, three. — **Harry Green** has joined **Brandeis, Goldschmidt and Company, Inc.**, 165 Broadway, New York City, where he will be engaged in the nonferrous metal business, a field he has been in since 1925. He has two boys: **Michael E.**, aged seven, and **Charles D.**, four. — **Theodore M. Edison** reports he is still busy on research in the field of industrial physics at **West Orange, N.J.** — **Rosalie M. Cobb** reports that she has been chemist in charge of the research department of the **Lowe Paper Company** in **Ridgefield, N.J.**, for 12 years. She remarks that since all the other tennis players from the old research laboratory of applied chemistry at Technology are vice-presidents of the **Standard Oil**, hers is a very slow rate of progress. — **W. L. Stewart, Jr.**, is a vice-president of the **Union Oil Company** in **Los Angeles**. — **L. K. Downing** is dean of **Howard University**, **Washington, D.C.**

Ralph Rubins is an engineer with **Sargent and Lundy**, steam plant engineers of **Chicago**. — **Toby Pearson** is living at **Westmount, Quebec**, where he is in charge of Canadian sales for **Dewey and Almy Chemical Company** of **Cambridge**. — **George H. Southard**, 3d, is with the **United States Patent Office**, where he has been for eight years. — **Martin H. Burckes** is assistant professor of military science at **Ohio State University**, **Columbus**. He reports that he expects to be at **Camp Perry** at the national rifle matches again this year and offers to show any who attend how the matches are run. He reports a son, six years old.

W. E. R. Covell, lieutenant colonel in the **United States Army**, recently elected a term member of the **Corporation of the Institute**, is at present district engineer of the **United States Engineer Office**, **Pittsburgh, Pa.** He is in charge of navigation and flood control work in the **Ohio River Basin** above **Wheeling, W. Va.** This district includes all of the **Allegheny** and **Monongahela** rivers, on the latter of which is transported a tremendous amount of freight. **Colonel Covell's** office operates and maintains 34 locks and dams on the three rivers and has just completed **Tygart Dam** above **Grafton, W. Va.**, the largest masonry dam east of the **Mississippi**, at a cost of **\$18,000,000**. For this and other projects, he says he is spending approximately **\$10,000,000** a year of the taxpayers' money to which he hopes the **Class of '23** is contributing its share. He has on his rolls approximately 1,500 individuals, including 300 to 400 engineers. He further mentions that he had the pleasure of retaining **George Barnes** as consultant on the hydraulic design of a new dam to be located on **Mahoning Creek**. **George Barnes** is professor of civil engineering at **Case School of Applied Science**.

P. P. Pratt is apparently still building factories for the **Postum products** division of the **General Foods Corporation** at **Battle Creek, Mich.** He reports that he recently returned from an inspection trip of sugar properties in the **West Indies** and is currently completing details of a **\$1,500,000** milling plant, the design of which was completed last year. He has a son, aged eight, and a daughter, four. — **William A. Gallup** of **Boston** missed the reunion because he started a trip to **England** early in **June**. He was accompanied by his wife and three children. — **Walter E. Richards**, major in the **United States Army Air Corps**, writes from **Kelly Field, San Antonio, Texas**. Since leaving school he reports that he has been all around the world. Included among his stations have been **Hawaii**, the **Philippines**, **Dayton**, **Boston**, **Selfridge Field**, **Sacramento**, and **San Antonio**. He has a daughter nearly twelve years old. — **Bill Upham** has been in **St. Petersburg, Fla.**, since 1923. He was president of the **St. Petersburg Realty Board** last year and is currently chairman of the **St. Petersburg Zoning Adjustment Board**.

W. B. Richardson is in the chemical department at **Georgia School of Technology** in **Atlanta**. — **William P. Allis** is assistant professor of physics at **Technology**. He is married and has one daughter. Aside from his professional work of trying to keep alive the reputation that "Tech is hell," he is trying to maintain a slight reputation for rock climbing, skiing, and canoeing. — **Parker B. Holden** was head chemist for the **Rising Paper Company** in **Housatonic, Mass.**, from 1929 until **September, 1937**. He is now with **Stowe-Woodward, Inc.**, of **Newton Upper Falls, Mass.**, a concern which makes rubber specialties. He is married and living in **Needham**. — **Erwin G. Schoeffel** is assistant superintendent of the **Massena, N.Y.**, plant of

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the Aluminum Company of America. — J. W. Beretta reports that he has so much work to do that nothing else seems very important right now. He reports the rush comes from running a consulting engineering business against government competition, serving as director of two banks, as national president of the American Toll Bridge Association, director in the National Society of Professional Engineers, running a bachelor country home, training saddle horses, and serving as governor for Texas of the Sportsman Pilots Association. — Fred H. Chirgwin is Pacific Coast manager of the Cooling and Air Conditioning Corporation, with headquarters at Los Angeles. He reports seeing Lance Hanson every year or two at Berkeley. — Jack Cochrane, writing from Wyoming, Ohio, a Cincinnati suburb, says he is still doing research and development work at Formica Insulation Company where he has been since 1925. He has a boy, aged 11½, and a girl, nine. He reports still being interested in boy scout work, photography, and sailing, and that his son has gotten him mixed up in gas-powered airplane models which keeps him busy repairing the crack-ups. Jack had to pass up the reunion to represent Alpha Chi Epsilon at its New Orleans conclave in June.

John A. Robbins, writing from Merion, Pa., reports that he spent a year in New York with Electric Bond and Share after finishing at Technology and then returned to his native heath, Philadelphia, where he has been associated with the construction business since. In 1932 he organized the John A. Robbins Company, Inc., specializing in commercial and industrial work. He has a daughter, aged three and one-half. — P. H. Vivian is with the Western Electric Company in New York. — Doug Severn is with the Van Tassel Leather Company at Norwich, Conn. — Hap Hazard, writing from Bloomfield Hills, Mich., reports a new arrival in the family, Schuyler, 3d. Hap is with the spring washer division of the Philadelphia Steel and Wire Corporation in Detroit. — H. H. Zornig, lieutenant colonel in the United States Army, is chief of the research division at the Aberdeen Proving Ground in Maryland. He reports his work is in exterior and interior ballistics and ordnance engineering. — Phil Wilder is alumni secretary and assistant professor of education at Bowdoin College. He transferred from Technology after his sophomore year. He got his B.S. from Bowdoin and because of his job there he says it makes him a "professional Bowdoin man." — Verne V. Cocks is with the Commonwealth Edison Company in Chicago and is married. He says he got a late start in the utility business, having followed gold mining in the west after leaving Technology.

Joe Nowell makes the following comment in a letter to President Bob Shaw. This involves a matter which I think should be given some thought by the Class even though I do not personally favor the course Joe suggests. Here is what he has to say: "I understand that the proceeds of the insurance policies

which a number of us took out just before graduation are scheduled to go to some general class fund. No doubt these would be put to excellent use, but in my personal opinion the gymnasium and related facilities should certainly be considered as Tech's most important need. We believe the Class of '23 could perform no greater service as a Class or as individuals than to make the insurance fund proceeds available for the gymnasium. From E. G. Allen '00, director of the campaign, we have found that our past insurance premiums can be credited over to the Gym Fund and that the policy can be canceled if further premium payments are pledged toward the gymnasium." — Has anybody any reactions to report to this proposal? — HORATIO L. BOND, *Secretary*, 18 Jefferson Road, South Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, 96 Monroe Road, Quincy, Mass.

1924

Three items of class interest are provided by newspaper clippings this month. The first is from Washington, Pa., announcing the conferring of an honorary degree of doctor of chemistry on Earl Frazier by the Academia de Ciências e Artes of Rio de Janeiro, Brazil. At about the same time it was announced that Earl, who is vice-president of Frazier Simplex, Inc., had also been elected vice-president of the Washington Union Trust Company. That seems like quite a lot of honors for any one individual, and Earl wins our congratulations.

From New York papers we learn that J. Lynch Piland, who attended the Institute after being graduated from the United States Military Academy, was installed recently as deputy commissioner of hospitals in charge of construction, engineering, and architecture. And from Worcester, via Obie Denison, we received a clipping announcing the election of Hudson Hoagland as recording secretary of the American Academy of Arts and Sciences. He was elected a fellow of the academy in 1934 for his research work in physiology.

Recent address changes which have come to the secretary's notice (largely from subscriptions to the Alumni Fund) include the following: Dr. Armand J. Abrams, Magnolia Petroleum Company, Dallas, Texas; James E. Enright, Firestone Tire and Rubber Company, São Paulo, Brazil; James E. Jagger, Alabama Water Service Company, 1300 Watts Building, Birmingham, Ala.; Robert L. Kittredge, R.F.D. No. 1, Park Road, Indian Hill Station, Cincinnati, Ohio; John H. Walthall, 99 Village Avenue, Sheffield, Ala.; and Marshall N. Waterman, 141 College Avenue, Poughkeepsie, N.Y.

An encouraging volume of correspondence from which material for class notes may be written is building up, and the invitation is repeated to other members of the Class to send in material either about themselves or about classmates. With an extension of the present type of coöperation, it should be possible to have exten-

sive and interesting notes every month. — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass.

1925

This month seems to be one of discoveries and personal reunions. To begin with, Scott Emerson, of whom we have heard little except the bare fact of his marriage, turned up at the Institute a few weeks ago. Although his home is in Wayland, Mass., his work keeps him on the road most of the time, and this was his first visit to Technology for several years. He is working for himself as a consulting mercantile engineer and finds himself confronted with all sorts of problems, ranging from the brewery business into the realms of mineral products and markets. He has changed but little since our undergraduate days, but his smile seemed a little broader, for he announced that there had been an addition to his family quite recently.

Glen Bateman, our undergraduate and first graduate President, returned to the States from his home in Johannesburg, South Africa. He spent most of his time in New York, and as a consequence we were unable to get in touch with him for a personal interview. However, he turned up at the Alumni Office and talked with the Editor of The Review, who supplies the Class with the following information: "En route Glen had spent a month in London, and when he sailed from this country in the middle of May, he planned to spend another couple of weeks there. While here he was contacting the manufacturers which his firm represents as distributors of machinery in the Johannesburg area. With Glen on this trip were his wife and two children. Mrs. Bateman's parents live in Toronto. Glen, since he left us, apparently has become handsomer than ever and acquired an accent more English than American, although he still is highly voluble in the saltier and more expressive regions of the American vocabulary. He has also become an aviation enthusiast and sportsman, having his own plane in which he travels extensively. It was a pleasure to welcome him back."

We learn, via an address change notice, that Mary Morrison, one of our coeds, is now Mrs. John E. Kennedy of 297 Dartmouth Street, Boston. — Rufus Palmer, XIV, has been studying for a doctorate in ceramics at the Mellon Institute in Pittsburgh, Pa., and expected to receive his degree last month. — Ken Bainbridge is connected with the physics department at Harvard, where he recently received a promotion.

Obie Denison '11 sent us a clipping from the Worcester Telegram of May 11, which reads as follows: "Robert F. Gow was elected chairman of the Worcester Section of the American Society of Mechanical Engineers at the annual meeting last night at Worcester Polytechnic Institute." He works for the Norton Company in that city.

On account of pressure of personal affairs, your Secretary has found it necessary to resign, and your present Assistant

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Secretary is taking over the job. As a matter of fact, we are exchanging jobs, with Foster as assistant and Ware as secretary. President Price, who is connected with the Hammernill Paper Company, Erie, Pa., has ratified this re-arrangement. The change in position of signatures at the foot of your class notes will take place with the first issue in the fall. — F. LEROY FOSTER, *General Secretary*, Room 6-202, M.I.T., Cambridge, Mass. HOLLIS F. WARE, *Assistant Secretary*, 17 Green Road, Medford, Mass.

1926

As many of you undoubtedly observed, the name of the Secretary at the end of the notes last month was a rank forgery. The column had a guest conductor, Miss Jane McMasters, who might, with advantage to the Class, be given the job permanently of Class Secretary. Her experience in the society department of a metropolitan Boston newspaper adds to her naturally graceful literary style a skill in reporting the activities of glamour boys and girls and other such notables as abound in this Class.

These notes are written before June, but the marriage curve is already rising. In April, Miss Elizabeth Geer of New London, Conn., and St. Petersburg, Fla., was married to George W. Breck at the Little Church Around the Corner in New York. George and his wife are living at 147-15 Northern Boulevard, Flushing, Queens. — On May 21 at Ossining, N.Y., Miss Evelyn Squire of that town was married to Harvey W. Culp of New York.

Arthur C. Fuller is now with the American Gas and Electric Service Corporation inventorying the transmission and distribution lines of the Kentucky and West Virginia Power Company. — The L. W. T. Cummings' of Wyncote, Pa., reported to the Secretary a second son, Coleman Jordan, born on January 10 in Philadelphia.

During a trip in April, the Secretary had the pleasure of having lunch with Bill Sessions in Cleveland and of going through Nela Park with Red Elmendorf. Both seemed to be thriving — Bill as a patent lawyer and as secretary of the M.I.T. Association of Cleveland, and Red as a research engineer with the General Electric Company. A few weeks after the Secretary returned, he again had the pleasure of seeing Red, who had come to Boston. He was kind enough to call on the Secretary in the Technology infirmary.

It is a pleasure to note that Elton Staples has been elected to the M.I.T. Alumni Council, where he joins Eben Haskell in the '26 contingent. Elton did a remarkably fine job in handling our class campaign in the Boston area. Incidentally Elton had a severe attack of jaundice this spring, which took him out of circulation for three weeks or so.

Several '26 men were active in the planning and management of Alumni Day this year. Ted Müller, our industrial designer, was in charge of the exhibition of science and the arts, while Herb Beckwith was in charge of the retrospective

exhibition in the School of Architecture, and Elton Staples, on the dinner committee. There have been several notable visitors in the last month: Dave Shepard called by on his annual visit to the States from London where he is with the Standard Oil Development Company. R. E. Mattson of Pasco, Wash., also dropped by but unfortunately the Secretary was out. He is with the Northern Pacific Railway Company. Finally, Horace Bush called to announce that he was now a statistician with the investment firm of Carver and Company, Inc., of 75 Federal Street, Boston. Hereported that at a recent Theta Xi reunion three '26 men were present: Art Brockelman, who besides being head of Brockelman Brothers, a chain of markets north of Boston, is also president of the Rotary Club of Lawrence; Malcolm MacDuffie of the MacDuffie School for Girls in Springfield; and Martin Walter, Jr., of the New Bedford Cordage Company. The Secretary hoped to see many '26 men at the various Alumni Day events and to gather from them a full meed of fodder to store in the summer silo for future usage. He wishes each and every one of you a refreshing summer. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1929

Now that we are reading all about Alumni Day and this and that reunion, let us meditate on the fact that next year will be 1939 and that we will return to the vicinity of Boston for our 10th reunion — that is, as many of us who can and will start making plans now to be on hand. Remember this is your one and only 10th reunion. Consider the matter seriously. Unless something very unexpected happens Yours Truly will say now that he will be on hand. How about the rest of you?

We read in clippings from the newspapers that Willard Slagle, XV, was married to Miss Ellen Agnes Mekkelson of Arlington, Mass., on March 25. They took a wedding trip to Nassau and planned to stay there for about a month. On their return they planned to live in Cambridge, where Bill is assistant to the president of Dewey and Almy Chemical Company. — Another Boston newspaper carried the announcement of the marriage of Joe Clary, II, to Miss Elizabeth Prime of Laconia, N.H., on April 16. After their wedding trip Joe and Mrs. Clary will live in Narbeth, Pa. Since Joe left Firestone and Akron a few years back we haven't heard much from him, but now he is located we wonder what he is doing for a living. Drop us a line, Joe. Congratulations to these newlyweds who are just in time to qualify for the married men's events at the next reunion. May you live long and enjoy great happiness!

Press clippings also tell us of the engagement of T. B. Curran, X, to Miss Phyllis Scott of Bridgeport, Conn. T. B. is a research chemist with Remington Du Pont Company and is also an instructor at the Bridgeport Engineering Institute. To them we send our best wishes and to T. B. our congratulations on making

the first step. — From Gordon Williams, I, who is in Washington with the water resources branch of the United States Geological Survey, we received the newspaper clipping covering the untimely death of Marcus J. Lawrence, VI, formerly of Washington, D.C., and in recent years ranch owner of V Bar V Cattle Company of Rimrock, Ariz. The Washington newspapers on May 12 carried the story which indicated that he was beaten to death in a fight that followed a party in his assailants' home early on the morning of May 11 in Prescott, Ariz. He was being sued for divorce at the time, and Mrs. Lawrence was in Phoenix when he was killed. He is survived also by a brother in Cleveland, Ohio, and his mother of Washington, D.C. He had purchased the V Bar V Ranch near Prescott five years ago from a member of the Swift family of Chicago, and the ranch house was said to be one of the most elaborate in the state.

From a friend, Willard E. Vaughan '26, we learn of the sudden passing of Lawrence B. Gregory, who took his master's degree with us in 1929. He died very suddenly of heart trouble while spending his vacation with his wife and baby son at the home of his mother in West Roxbury, Mass. He worked for the Standard Oil Company of Louisiana at Baton Rouge. Larry had started with the Class of 1926 and changed to Boston College subsequently. It is with great sorrow that we note the untimely passing of these two classmates and extend to their families our sympathy in their bereavement.

From the Course VI-A *News* we learn that George Meyers has been issued a patent on a method of manufacturing electrical cutouts. The patent was assigned to the General Electric Company for whom George works in Lynn, Mass., or did the last we knew. Congratulations, George. Hope that it added to the monthly stipend and has received due recognition in other ways.

Once again let me state that now is the time to start making plans for our 10th reunion. Where would you like to see it held and do you have any special ideas for the program? — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1930

Phil Torchio, II, is the headliner this month with the announcement of his engagement to Miss Muriel Farnum of New York City and Providence. Another of our Class has recently been advanced to the rank of assistant professor on the Institute staff: George Wadsworth in the Department of Mathematics. Howard Gardner has been made head of the department of chemical engineering at the University of Rochester. To all three men, congratulations!

George Barker, V, is a staff member of the Mellon Institute of Industrial Research in Pittsburgh. — Hugh Wallace, XV, is back in New York again after a business trip of six months out to San Francisco. — Fred Huntington, XIII, is now affiliated with the yacht designing firm of Sparkman and Stephens, of which Olin Stephens, XIII, is a partner. Their

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success with the cup defender *Ranger* last summer speaks for itself. — Yicka Herbert, V, writes: "... Up at the American Society for Testing Materials meeting in Rochester last month I met Herbert Wampner, V. He is connected with Commercial Solvents Corporation. He lost the toss and bought the writer a nice dinner. For a while it seemed like old times. He is married, has a child, and has just built a new home in Duluth. I just have a short note here from Dick Berry, V, who is still single and going strong. Dick is with Barbasol in Indianapolis. I shall be out that way this month and shall look him up. Yours Truly is working with the Krebs pigment division of Du Pont and is very much pleased with both the present and the future in this organization. ... By the way, I am still single but am under quite a bit of pressure." Better watch out, Yicka!

An old *Technique* associate, George Temple, XIV, takes pen in hand and says in part: "Just now I'm working in the control lab at the Delaware works of the General Chemical Company, and while business is somewhat slow I hope to ride through this period, especially as I have a wife looking to me. Yes, I went and did it last June. I married a girl from Chicago who had wandered too far east. We have a small apartment at 15 East 42d Street, Wilmington, and would be glad to see any of the Class whenever they get in this vicinity. ... — Let's hope some of the Class will take Temp up on that proposition, and that all of you will spend a very enjoyable summer. A letter to your Secretary will start you off in the right direction! — PARKER H. STARRATT, General Secretary, 75 Fenno Street, Wollaston, Mass.

1932

It will be a great surprise to the members of our Class to note this reappearance in the columns of *The Review* after a long absence. We will hope that the interesting news from Jack Kimble, which is the substance of these notes, will encourage others to lift the veil of mystery concerning their activities and send some news to Chippy Chase (not to me, C.L. W.). The two communications from Jack, the edited versions of which follow, have been somewhat delayed in reaching these columns (regretfully due to my procrastinations), but in his own inimitable style Jack gives us a view of life in Trinidad. The first letter was written in December, the second in January: "Back in Tulsa, I worked in the main office [Seismograph Service Corporation] for two weeks and then took off for West Texas. Domestic contracts became scarce (always do at that time of the year). Fortunately, the foreign business blossomed forth in a big way. They told me all of a sudden to prepare medically and legally for a trip to Venezuela or Trinidad. Fortunately, it was the latter. By December 30, we shall have four crews on this little island. I'm in charge of one of them. A very smart Dutchman is supervising the whole works. The company could stand a South American main office, as there

are also crews in Venezuela and Argentina ... and foreign contracts make the company more money than domestic ones. Most of the boys came down by boat. However, they were in a hurry for two of us, so we took the train to Miami and flew down from there by Pan American. The trip was a mixture of delight and monotony. We left Miami early Sunday morning, stopped at Avila, Cuba; Port-au-Prince, Haiti; Santo Domingo; and stayed the night at San Juan, Puerto Rico. I was much surprised to meet Bill Sample '34 there. He was a freshman, assistant manager of track, when we were juniors (Sigma Chi). He works for American Airways in St. Louis and was vacationing. ...

"I am still becoming acclimated. Fortunately, I am not a Southern gentleman, so it's not too much for me to get along with the blacks. San Fernando is 95 per cent black, Hindu, and Chinese. About 90 per cent of these have syphilis. They have black doctors, judges, and so on. Of course the British run the show. The Crown collects on everything — costs four cents for a receipt to be legal. The money is a mixture of English and American — it is for the islands of Trinidad and Tobago (Robinson Crusoe's) and uses ha'pennies, shillings, crowns, and florins, and so on, but ends up with dollars — no pounds or guineas. The exchange is adverse by about five per cent. However, we have part of our pay deposited in United States banks and enough for living is paid us in Trinidad money. I'm signed up for the duration of this contract, not exceeding one year. At that point, I shall probably be glad to return to the States. However, I believe I can live here a year and like it. The temperature has been decent, the food is quite good (much better than my most optimistic hopes) and, if one adapts himself, it is enjoyable here. All the whites here live well. The Englishmen are very cold at first in accepting the uncouth Americans. However, they are fine people and, once accepted, one can get along with them very well. There is a club here (which I joined the other day for tennis and bar purposes) and one in Port of Spain which I shall soon join. Most of the boys go over there for the week-end. We stayed ten days at a hotel here on arrival but are now sharing bachelor quarters with six other company men. Have a very nice house overlooking the bay. We can see Port of Spain to the north and Venezuela to the west.

"I bought me a good camera (Reflex-Korelle) before leaving Tulsa and have been snapping at everything. Had a few good shots from the plane and some poor ones. One needs a color film to appreciate this place. Orchids grow wild. It is truly a little green hellhole with humming birds, bushmasters, coral snakes, scorpions, a million kinds of bananas, coffee, cocoa, sugar, grugru trees, hibiscus, moonflowers, and a million other things thrown in for good measure. Let me stop before I try to write a Baedeker on Trinidad. There is much for me to learn about this place and, as previously stated, I

shall probably enjoy it for a while and be glad to go home. What the future may be then is still a guess. The foreign work pays very well, but I don't expect to continue it indefinitely. Thanks to the Dutchman, E. J. P. Van der Linden, I have learned some high-powered new ideas on this work.

"There are some ... Hindus living along the beach below us, and they play Fourth of July for about two weeks at this time of the year. They shoot off kerosene or gasoline in bamboo poles. They also beat gongs and do some weird singing in 96 different keys. Thanks to native holidays, we get quite a few days of rest during the next two months."

The January letter begins here: "Circumstances compel me (I mean, make it advisable for me) to write you tonight. Your letter, with inclosures, arrived today and I was very glad to receive the whole envelopeful. If I remember correctly, I wrote you shortly after my arrival here. Since then, there have been so many new things and time has been so fugitive that I may repeat myself this time. This Trinidad life is something new to me and I am still an ignoramus, although learning fast, I hope. Since I last wrote you, I have entered into the social life and am beginning to see how easy it is to go native, not in the common sense of liquor, ukuleles, and native women but in realizing that one can live down here on \$200 per month a life that would cost \$50,000 a year in the States. It looks to me as if I could stay in South America for years but I don't desire to do so. The trouble with returning to the States is that I won't be able to live there in the style to which I am becoming accustomed. Furthermore, I should like to get a berth that would keep me in one place. I believe that is possible but improbable.

"You're right about the scarcity of '32 news. I wrote Chippy twice since heading west but have not heard from him. You are at liberty to quote me, with a bit of editing. Except for Bill Howard (J. Walter Thompson — St. Louis), Nick Sparre, and Jim Harper, I hear nothing. Most of the Caripito boys came up here over the Christmas holidays, but I didn't see Tom Jenkins among them. ..."

Don Gilman stopped in to see me recently while on his vacation. He is a specialist for the Sears, Roebuck Company in the matter of social security. He reported meeting Bill Kirkpatrick some time ago. Bill is a busy attaché of a paper company up in Michigan. Don had also heard indirectly that Bill Holst is governing an island in the Dutch East Indies along with his duties in the petroleum business there. — An announcement has just arrived of the marriage of Johnny Lawrence to Miss Janet Beal of Windsor, Vt., on May 28. Good wishes to you and your bride, Johnny! — Louis Hough was married last January 29 to Miss Kate-Alden Gandy. They are now living at 7 Wellington Terrace, Brookline, Mass. — From Hartford we hear of two engagements: Dick Park became engaged to Miss Maylah Grace Hallock on March 26. In May I met them at Harold Thayer's

1932 Continued

('34) wedding, where Miss Hallock was the maid of honor. The engagement of Bill Schoolfield to Miss Elizabeth Kusterer was announced in April. Miss Kusterer, a member of the Hartford Junior League, attended Dana Hall and was graduated from Smith College. — John Zouck is engaged to Miss Jane Riegel Williams of Baltimore, Md. Miss Williams attended the Garrison Forest School. — To Edward and June Rosenquist a boy was born on February 28. They named him Edward Palm Rosenquist. — Charles Chapman, 2d, was born March 26 to Margaret and Charles Chapman. — Richard Barry Marshall arrived at Arthur Marshall's home on May 24, Arthur's second son.

Dick Stewart was the son in "The Fathers and Sons in Chemistry" section in *Industrial and Engineering Chemistry* of March 10. After telling of his education at Tech, the article proceeds as follows: "Soon after, he became interested in combustion work and this brought him into association with Carleton Ellis, of Montclair, N.J. This work led to a series of patents on the application of illuminating gas to house heating. His chemical work with Mr. Ellis quite naturally led him into the field of synthetic resins, and he later assisted with Mr. Ellis' book on that subject. His interest in synthetic resins as insulators brought him into contact with the Anaconda Wire and Cable Company, with which he became associated in 1935, at Hastings-on-Hudson, N.Y. He registered as a patent attorney before the Patent Office and his chemical interests now include all types of insulators and copper. He is a first lieutenant in the reserve of the Engineer Corps and is an ardent golfer. He was married on September 29, 1934, to Eleanor Noel Russell and they have one son, Barry R. Stewart."

Freddy Alexander contributes the following grist to the mill in a letter to the Alumni Association: "This business of constructing airplanes is great stuff and is considerably different from erecting steel bridges, which is what I was doing last year. However, I am working in O.K., I think, and it's rather nice to work only eight hours per day. We don't work Saturdays or Sundays, either, and all weekend I feel like I am playing hookey. I live in a small town next door to the plant. I imagine all the inhabitants of this town could be put inside the walls of Room 10-250 without overcrowding, but it isn't such a bad place to live in. I am right on the water, which should be an advantage in summer, and I hear the fishing out in Chesapeake Bay is angler's paradise or something. This latter angle has not as yet been personally investigated, but it calls for some determined research this coming season." Freddy's address is Kingston Park, Middle River, Md., and it is the Glenn L. Martin plant at which he is working.

We will wind up with the old plea for more news. Send us a card of your doings this summer. — CLARENCE M. CHASE, Jr., *General Secretary*, 47 West Maple Avenue, Bound Brook, N.J. CARROLL L.

WILSON, *Assistant Secretary*, Research Corporation, 137 Newbury Street, Boston, Mass.

1933

By this time we are all "recuped" from our escapade at Norwich. As this went to press before the reunion, we cannot include any news of it. However, from all preliminary information, the affair looks to have been a rip-roaring success. In next November's class notes we will be able to give you more information about those who were there.

Clippings from the society columns tell us of the marriage of Edward Dodge Rohn to Miss Marjorie MacCubbin at Montclair, N.J., on April 2, and of the engagement of Alfred W. Garnell to Miss Dorothy Gibbs. Garnell is on the engineering staff with the United States Bureau of Reclamation at Denver, Colo.

The feature article in the magazine section of the New York *Herald Tribune* of May 22 was the story of Max Gene Nohl's activities during the last few years. It seems that Gene has always had a love for deep-sea diving and left Tech before completing his four years, in order to go with Phillips Lord on his *Seth Parker* trip, seeking sunken treasures in the Caribbean. Gene's most notable accomplishment is the designing of a diving suit using helium and oxygen instead of air. In this suit he created the world's record for deep-sea diving — 420 feet. His next venture is to participate in the salvaging of the S.S. *Lusitania* this summer. We surely wish Gene every continued success and hope that he never forgets which direction is up.

That's about all we have in the line of news for this issue which marks the close of our fifth year. This column exists only through the information you fellows send in; so please use it. — GEORGE HENNING, Jr., *General Secretary*, Belmont Smelting and Refining Works, Inc., 330 Belmont Avenue, Brooklyn, New York. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-102, M.I.T., Cambridge, Mass.

1935

Here are two engagements which have come to my attention: Warren Clapp and Christina Nelson will be married on July 14 in Elkton, Md. Art Linn and Doris Collins of Somerville have announced their engagement. Art is now a research engineer with United Chromium, Inc., of Waterbury, Conn. — Professor Locke '96 sent me a note which stated: "M. A. Porter writes that he has secured some splendid experience in practical mining during the past four months at the West Mayflower Mine in Montana. He did tramping, mucking, timbering, drilling in stopes, drifts, and raises, and helped catch up sills. Incidentally he designed a new car-wheel flange to prevent wrecks at turns and switches, and this new flange has been adopted by the company. Recently he has received a call to Butte to take his old job of sampler in the Mountain Consolidated Mine of Anaconda. He reports that an alumni gathering was held at the New Finlen Hotel in Butte a few

weeks ago at which seven were present — Messrs. Trauerman '07, Russert '18, Jacard '07, Riley '09, Kemper '04, Clark '35, and Porter '35."

A few letters came in during the month. Beverly Dudley left a note when he was here for the Gridiron dinner and, with his superior at McGraw-Hill, was examining some of the Course VI Honors Group men. In addition to working on the editorial staff of McGraw-Hill, Dudley has been going to night school at Columbia. Vin Ulrich, Don Fink '33, S. Paul Johnston '23, and Dudley were the judges of the college journals competing for the T.E.N. Cup. Dudley presented the cup to the editor of the *Michigan Technic* and had his first experience speaking before a large audience.

Al Hamilton, who has been working for the Taylor Instrument Company in Rochester, N.Y., has been making progress. He started as a production clerk in the division which makes industrial instruments for recording and controlling temperature, pressure, and flow. His particular job had to do with the control valves. He progressed to handling all the production orders for these valves and has learned a good deal about some of the other instruments. He recently has been working in the engineering department on equipment for the petroleum industry. Al was married on March 12 to Marion Ogilvie of Rochester, N.Y. He reports that Rog Brookman is among the engaged, the girl being Carol Horton of Rochester. — Two other marriages are those of Ed Gelus to Margaret Switzer on May 28 and Tom Finucane to Elizabeth Reardon on June 4. Best wishes to all you boys and gals.

This Week Magazine, a section of many newspapers, carried quite a long article by Max Nohl on his experiences diving for various treasures and also about his record-breaking descent into Lake Michigan: "My feet are cold. Hanging on the descending line, about thirty feet below the surface of Lake Michigan, I have nothing to do but wait for my decompression to be complete. I still have more than an hour to wait. Above me I can barely see the black outlines of the Coast Guard cutter; below there is only a deep green darkness that fades into blackness a few feet away. A slight leak in the left shoulder of my diving suit has allowed the water to soak through my woolen undersuit. The water is cold — for it is the first day of December, 1937. I have just set a record — gone down 420 feet — deeper than any man ever went before in a diving suit. But as I hang there, damp and miserable, I wonder why I ever wanted to be a deep-sea diver. . . ."

"I did my first diving about ten years ago, when I was in high school and a bunch of us figured out a diving suit. We got hold of an old army gas mask and hooked it up with an oxygen cylinder from a dentist's office. It was a funny looking contraption, but when we tried it out, it worked. With it we could go down in six or seven feet of water and stay there for several minutes. The oxygen supply was skimpy and sometimes we swallowed a mouthful of water, but

1935 Continued

we got the 'feel' of diving. To most of the fellows this was just an experiment and some fun. They were satisfied. But with me it was different. I had the urge to dive — deep, clear green water held an intense fascination for me — a fascination equivalent to a challenge. . . .

"Dad wanted me to go to law school, but in 1929 I went East and entered the Massachusetts Institute of Technology in Cambridge. My spare time as a freshman was spent hanging around the divers down at the docks. I got some experience filling in as a 'bear' — one of the diver's tenders — and even went down a couple of times. . . . My first commercial salvage job was a honey. A man had lost his false teeth off the dock at Marblehead several days before. He was willing to pay well, so off I went — and got the tusks the first time down. Funny thing, but the glass in my helmet and the magnifying effect of the water made those snappers look like shark's teeth. Frightened me for a minute. That made a good story at the time, but ordinary commercial diving is a grind. You inspect pilings, look for lost teeth and jewelry, recover anchors for careless yachtsmen and, in general, just slog around in dirty harbor water. . . .

"Just before my final exams that year I heard about Phillips Lord and his projected adventure trip around the world in a four-masted schooner. . . . For the next seven months I was steeped in adventure. . . . In all my search for adventure beneath the seas, I never came as close to death as I did on a sunken yacht off Cape Cod the following year. . . . It was a narrow escape and it brought home to me the extreme danger of deep-sea diving in the conventional suit. The air hose is both life and death to a diver. A tiny leak, a fouled line, a stubborn valve — any of these things may spell death. As a result of this experience I started work again on a self-contained diving suit that I had experimented with for several years. . . .

"Later I received an excited call from Captain Craig. He explained that he had obtained a contract to participate in the salvaging of the *Lusitania*. Was I interested in helping him? He wanted me to help him develop the self-contained diving suit for deep-water work, and offered to finance my experiments. There were a lot of tough problems to overcome. The *Lusitania* sank in 312 feet of water off the coast of Ireland. That was six feet deeper than the record set by Frank Crilly, United States Navy diver, in 1915, when he tried to salvage the submarine *S-4*.

"One of the great problems we had to face was that of decompression. At 240 feet, the depth of the *Lusitania*'s decks, the decompression time is about four and a half hours for one hour of diving. The decompression time had to be shortened. Another problem, which ties right in with decompression, was the bends, or caisson disease, a diver's chief danger. When nitrogen and oxygen are pumped into his system under the tremendous pressure of deep-sea diving, he must also allow the gases to come out before he

returns to normal surface pressure. If he doesn't, he gets the bends — nitrogen bubbles forming in his blood and tissues. This causes acute pain, paralysis and even death.

"After I carefully studied the properties of every known gas, helium seemed to me the ideal substitute for nitrogen. The story of my study leaked out and I had a telephone call from Dr. Edgar End, of the Marquette University School of Medicine, who had been doing laboratory work on guinea pigs under great pressure. He invited me to work with him. We put guinea pigs through terrific pressure with helium and oxygen and they didn't get the bends. Then, with Dr. End and Captain Craig, I became a guinea pig. In a grueling series of experiments, Craig and I sat in Fisher's recompression chamber and breathed helium and oxygen under pressure. At one time we were under a pressure of 44 pounds a square inch, for which the normal nitrogen-oxygen decompression time would be forty-seven minutes. Craig and I were out in two minutes. A few months later we made a series of test dives in Lake Michigan and finally I went down 300 feet and stayed for some time. It was then that a radio company asked me to broadcast my next test dive. The Coast Guard offered to place the 125-foot patrol boat *Antietam*, at our disposal.

"When Dr. End gave the word to hoist me out and over the side of the cutter at 12:41 P.M., I was all set to go farther below the surface than a man had ever gone before in a diving suit. I've Vestrem, my 'bear,' tending the lines, sang out into our telephone the depths as I went down — 100 feet — 150 — 200. But here the descending line fouled. I had to be hauled back up. Then I descended again.

"I reached 100 feet — the *S-51* sank at this depth, with two-score men aboard. Vestrem's voice came through the phone: '110 feet' — that was the depth of the *Dwight*; '220 feet' — that's the depth of the *Merida*, which I'm planning to salvage this year; '240 feet' — I would now be touching the upturned side of the *Lusitania*; '306 feet' — that was Crilly's record; '360 feet' — the depth to which I had planned to go. I said, 'What the hell?'

"Dimly I could hear Vestrem say, '400 feet.' I called 'Lower away!' Then I was on the bottom, seventy fathoms below the *Antietam* — 420 feet down, 114 feet deeper than a man had ever gone before in a diving suit. I prowled around in the muck and spent some ten minutes before I called up the order, 'Hoist away!'

By the time you receive this issue of *The Review* your Secretary, having finished at Harvard Business School, will be working for the Gleason Works in Rochester, N.Y. The company produces machine tools for the cutting of spiral and bevel gears. I hope more of you will write this summer. Please note the change of address. — ROBERT J. GRANBERG, *General Secretary*, Central Y.M.C.A., 100 Gibbs Street, Rochester, N.Y. RICHARD LAWRENCE, *Assistant Secretary*, 111 Waban Hill Road North, Chestnut Hill, Mass.

1936

It is a pleasure to report that the recent announcement asking for news for this, the last class notes column until *The Review* resumes publication next November, did not go unheeded. We now have news from several sources that have long been silent; the collective glad words and good tidings are reported below. Those members of the Class who have yet to report their whereabouts and present activities can erase the black mark from their records by taking one of these fine summer evenings to pen (or type) a letter to their Course Secretary or to the General Secretary. In order to make the dead line for the first issue next fall, letters must be postmarked not later than midnight, September 15. Letters from our regular correspondents will also be received at that time (we hope)!

Course I. Some of the group may remember Bill Dyer, who started with our Class and completed his training at Northeastern University. Bill has recently become engaged to Miss Ann Louise Quinn, a home-town girl from Braintree. — Rumors have reached headquarters that George Payne is married, but further details are lacking. When last heard from, the only time George's heart skipped a beat was when he was walking on the high steel work in connection with his job for the structural department of the Sun Oil Company in Chester, Pa. — J. E. B. Jennings, who took graduate work at Tech, has been appointed as an assistant engineer in the research section back in his home town of Newcastle, South Africa.

Course VI-A. Martin Gilman has crashed through with a letter in his inimitable style which it would be a shame to spoil. Hence I quote from the letter: 'I am still working for the company that covers the back cover of *The Review* with ads about superinstruments. At present I am not doing much development work but am in the sales end of the game, answering correspondence, talking to customers, and occasionally selling a bill of goods. It really is exceedingly interesting, and I enjoy working as much as eating, sleeping, or any other very pleasant experience you might imagine. . . . On Open House Day, which seems to me to be as fine as ever despite the fact that the '36 boys were not running nine-tenths of the side shows, I bumped into Lawrence Peterson — didn't hurt him much. He is still becoming a General Electric businessman and is eating up all the statistics they have in Schenectady. He said he would write sometime later — probably about Christmas. Norm Willcox is doing nicely, according to reports, with his wife and cottage across the river from Schenectady in the little town of Scotia. . . . Both Dick Mabey and Theo Gibbs are winding up their Technological activities this June, if their luck holds out, and so they are taking the recession theory to heart. Perhaps they can through some illumination on the subject. (Typical Gilman pun!) News from the Philadelphia sector is a bit scarce also, but it

seems as though Ed Halfmann was working right along and at last reports was taking up golf so he could play along with the other bigwigs. I suppose he will be smoking cigars next. Since no news is good news, we gather that Bill Saylor and his wife are doing nicely in the City of Brotherly Love. (Bill ought soon to tire of hearing about his not writing.) Well, this is about all I can dig up, and confidentially, I hope there are a lot of mistakes so fellows will get up enough energy to write in and at least complain. Since it will be months before this gets into print, if it ever does, I will wish everybody a very pleasant summer, and a merry Christmas." — One item got by Mart: Bob Williams has now joined the Schenectady group, according to the *VI-A News*.

Course IX. Dick Odiorne has been doing a lot of correspondence trying to get news from this group, but so far only one letter has resulted. Dick asks the IX men to get busy and lend him a hand in his job of reporting. The grapevine and mental-telepathic methods do not work satisfactorily. The one letter received — from Slim Beckwith, who is still at the Chicago airport as meteorologist for United Air Lines — reads: "My job keeps me busy at all hours of the day — the weather is always cooking up some new joker for us to work on — and I haven't as yet found time to look up some of the '36 men whom I know to be working in and about Chicago. . . . Last fall Art Marquardt '35 dropped into town on a business trip and under the spell of the Old Heidelberg spilled some dirt that might be of interest to those who know Bob Reichart. It seems that Bob is working in Akron for Goodyear and at last advices was heeding the first recommendation of Tubby by dating up his boss's daughter. Don't know if he is yet single but think the word would have gone around if he had entered the married class. Passing through the airport terminal building one day I bumped into Charlie Shubart, XVI, and after some conversation found he had been working for Transcontinental and Western Air at Kansas City in their overhaul and maintenance shops. . . . From Philadelphia I have information from the man himself that Beanie Rulon, VI-C, was making a decided go of things with the Lamb construction company of that city — and not in the capacity of electrical engineer.

"I am still in the single class and am enjoying a big laugh at the expense of the boys in the office who, a year ago, bet that by now I would have fallen victim to one of the many very marriageable stewardesses who are in and out of the office where I work. . . . The work itself is decidedly the most fascinating branch of the air transport industry, and I am fortunate to be stationed at this terminal, which is the busiest on the system. At Chicago we study the weather from Newark to Cheyenne and in addition must give weather advices to passengers from coast to coast. If anyone thinks this work is dull, just drop in our

office when the weather is breaking one way or the other — and, of course, I came in for my share of the blame in bringing down the April blizzard on the heads of all Chicagoans. Part of the meteorologist's work carries him to the various terminals over which forecasts are made, and this necessarily carries me from Newark to Salt Lake — a not at all uninteresting routine. During vacation I had the opportunity to take a hurried trip to San Diego and return and covered over 6,000 miles in about 40 flying hours. No one could get me on a bus or train now. Air is the only way to travel (*adv.*). I am sure that at least one or two members per year will pass through the Chicago airport, and as I practically live at the field 24 hours a day, I wish they would look me up." — Bet Dick wishes for a few more good correspondents like Slim.

For himself, Dick Odiorne presents the following good news: "My wedding is slated for June 15, or thereabouts, in a garden especially designed and constructed for the purpose in Yellow Springs, Ohio. . . . As you already know, my lady, Louise Harris, is a landscape architect whose geographical background spans a good many states from Maine to Georgia, fortunately among them, Massachusetts. We shall return to Bean Town, where my job continues to have its pristine interest, and take up abode as apartment dwellers." — Wilfred Post, whose engagement was recently announced in these columns, was married on April 23 to the former Miss Jane Harriet Bartlett. Post is part owner of the Lehigh Aircraft Company in Allentown, Pa.

Course X. Herb Borden, our oilman down in Bayonne, N.J., has recently joined the roll of those soon to be married. Herb's fiancée is Miss Margaret MacCallum, a home-town Taunton girl and graduate of Simmons College and the Children's Hospital school of nursing. — Andie Brisse's work with the Carnegie-Illinois Steel Corporation has taken him away from Pittsburgh to the plant in Gary, Ind.

Course XII. John Fisher is still in Manila, Philippine Islands, but he is now working for Masbate Goldfields, Inc. Formerly, he was employed by the Mayon Mining Corporation. A little more news from this source would probably be interesting; get the hint, Johnny.

Course XIV. I saw Jack Hamilton recently on one of his infrequent trips from the Power City to Buffalo and learned that he was still on the job at the Union Carbide and Carbon laboratory. Jack had no news to offer, so I guess I have a scoop on him as course secretary. A notice in my mail reads: "Ruth and Dick Hitchcock announce the arrival of Barbara Lowe on April 26. Weight seven pounds, five ounces." — Our heartiest congratulations to the parents of this latest addition to our class family.

Course XV. Taking pen in hand and writing on official "Office of the President" stationery, Al Horton has given us some insight as to what becomes of these combination businessmen-scientists: ". . .

Via Johnnie Austin (whom these many years have favored, of course) I've heard news of Fletch Thornton. Apparently he's still alive, although badly battered from the trials and troubles of marital strife. Early in April, I unexpectedly wandered in to call on Hank Cargen in his little love nest amidst the hurry and bustle of New York City and suffered no mean shock. For before me there had gathered at the same cozy nook our handsome fellows Koontz, Ayer, and Thomas, by name. They had been out for a 'Sunday drive' and couldn't resist the temptation of calling on Henry's fair spouse. We of course took full advantage of the opportunity and, after rounding up Johnnie and Carol Austin, had a get-together that flavored highly of 'the good old days.' . . . By way of review, I might say that Johnnie is hanging forth with Union Carbide; Gordon with Regal Paper; Hank with Pedlar and Ryan (advertising); Nat is still the ice-cube king with York Ice Machinery Company; and our little Napoleon is the Philly vending machine for that very superior Reliance appliance upon which Harry Essley exercises daily with the screw driver and jig out in Cleveland. I might wander for a minute to other fields and say that Clax Monro told me not so long ago that all goes very nicely with J. Walter Thompson. It was pretty obvious that he was immensely pleased with his work. . . . I should be using unfair tactics to tell many secrets on Hank Lippitt. Besides, from our stylish penthouse on Commonwealth Avenue, his check on me is somewhat intimate. It might lead to embarrassment. However, he seems a fairly decent chap, and if I may say so, a housekeeper de luxe. And as for Yours Truly, well, I was going to make this letter short. Could you ever hope to find a better place to write finis?"

Proving that there is still another member of Course XV who doesn't want to see the year pass with no news from that group, Al Horton inclosed a letter from Frank Danforth. I wish a few more of our businessmen would take the Danforth attitude and help to "pull Course XV out of the doldrums in the 1936 column." Frank writes: "I . . . ran into Gus Gorham a month or six weeks ago in Chicago. He has been working for Buffalo Forge for a year and a half in their Buffalo factory, but was recently on the road selling for them and passed through Chicago in that capacity. I think he expects to go back into the factory. I also heard recently from Jack Gardiner, who is still in Philadelphia with Philco. Life seems to be very pleasant there. As for myself, I have been in this part of the world (Waukegan, Ill.) . . . since September, 1936, my work being in the specification department of Johns-Manville Corporation. I have been with the company since about a month after school, starting work in our New Jersey factory, where the men were trained for specification department work. At the end of the training period, we were sent to Johns-Manville factories all over the country. About half of the specification

1936 Continued

department consists of Tech men, and most of them are from Course XV. The big Tech event in this part of the world since I have been here was the dinner of the Technology Club of Chicago in November, at which President Compton launched the gym campaign. Graves and Rapoport were among the Course XV men I remember seeing there. I believe the total crowd was something over 200."

A newspaper account tells of Ed Snow's wedding on April 23. The bride, Edith Quinlan, is a graduate of Wellesley and Katharine Gibbs. After a simple ceremony performed before the immediate families only, there was a small reception at the Hotel Plaza. After a motor trip through the East, the couple have settled in Rochester, where Snow works for the Eastman Kodak Company. — A final note tells that Fred Hinton is working in the comptroller's department of United States Rubber Products, Inc., in New York City. — And so we close with the hope that next November will find the Class on hand with plenty of news. — ANTON E. HITTLE, *General Secretary*, 491 Ashland Avenue, Buffalo, N.Y. ALLEN W. HORTON, JR., *Assistant Secretary*, Room 3-210, M.I.T., Cambridge, Mass.

1937

To our knowledge the first child born to the Class is Joan Gibbs, daughter of Mr. and Mrs. John C. Gibbs. These are the first vital statistics we have published in this column, so we are not sure what to include, but we are sure we should say that Joan weighed seven pounds, four ounces, and was born on February 19.

From Denver comes word from Edward M. Fischer of the American Smelting and Refining Company that much work is being done on the reclamation of rare metals from the products of the plant. This entails much special chemical analysis and rigorous investigations as to processes and methods of extraction.

We have a new moniker from Mortimer Nickerson of 52 Winthrop Street, Winthrop, Mass.; he starts his letter with "Dear Gabby" — call us what you will; it is a pleasure to receive those missives now and then. Nick has an excellent idea which Al Reinhardt had already discussed with us concerning course secretaries to supplement the work of the General Secretary, who can never hope to maintain alone the necessary correspondence with the entire membership of the Class. Are there any others who are the unofficial secretaries of their Courses?

If so we will take steps to make them official and not without portf . . . but let Nick tell it: "As Secretary without portfolio for Course V '37, I have been meaning to write you for some time to give you the dope on the activities of our gang. Before graduation the fellows in our Course agreed to write me regularly, telling me all the news, but procrastination, to which I also succumbed, has made letters few and far between. However, I've finally accounted for all of them, so here's the story: Jonathan Cobb has been the most prolific letter writer. Cobby is with the Mellon Institute in Pittsburgh, Pa., starting work directly after graduation. At the same time he has a fellowship at the University of Pittsburgh and is studying for a master's degree. After four years at M.I.T. he finds his courses a pipe.

"Jerome Salny is another who is combining his work with graduate study. Jerry abandoned chemistry completely when he joined the staff of Johnson O'Connor's Laboratory of Human Engineering, and he is now spending his free time working for a master's degree in psychology at Stevens Institute. Jerry commutes daily to Hoboken, N.J., from his home in Morristown and is strengthening his will by resolutely passing 29 beer joints on his way to and from work. In this case his will power should be a direct function of his waist line. — Fran Houghton sends his regards from Du Pont in Wilmington, Del. His outside activities are mostly social, his particular interest being a young lady named Marguerite, who is training to be a nurse. The engagement will culminate with a marriage in August, at which time the bride will be a full-fledged nurse and should therefore be capable of taking care of Fran. Here's the best of everything to the couple.

"I saw André Laus on Open House Day, and he was as chipper as ever. He is with the Monsanto Chemical in Everett, Mass., doing special problems for customers. My observant eye noted that he was not wearing his Tech ring, but in answer to my questions he would only say that he hadn't lost it. — John Gould came in to see me the other day. He is at present with the General Electric in Pittsfield, Mass., but he has several hot prospects with other concerns. Due to the present recession the G.E. is cutting its staff strictly according to seniority, and John, with only ten months' work, is scheduled to go; but with these other

prospects he is not in the least downcast. — Jimmy Ames, after roaming around for a bit, is now a toxicologist in the Bellevue Hospital in New York, and when I last saw him, was as happy as a lark, despite his intimacy with autopsies and such.

"Dominic Cestoni stopped in the other day to see Professor Hamilton '14 about a job. He was working for several months on special research and doing handsomely, but that job is through now, and although he expects to be back with the same company in the fall, he is looking for summer work. — Phil Scarito is in North Adams, Mass., with the Arnold Print Works, supervising the dying of various textiles and doing general trouble shooting in the plant. — Norman Tompkins is working somewhere in Cambridge, but he never writes and the couple of times I have seen him, he didn't have much to say. — Walter Hughes is in Stockholm, Sweden, on the Moore Fellowship, studying biochemistry. He'll be back some time this summer and continue for his Ph.D. at Tech. — Frances Blackwood and myself are the only two members of the Course who are still at the Institute. She is working in the textile laboratory under Professor Schwarz '23. And as for me, well after spending five years here and with the prospects of at least one more year before I get my Ph.D., I'm beginning to feel as though I'd been here all my life. Just let me get away from ringing bells, exams, high-speed lecturers who give you writer's cramp, ideas which turn out to be a headache when you try them in the lab, and maybe I'll live again. . . ."

Dan Hanlon says he just thought he would drop a line to let us know " . . . that my old side-kick and thesis partner, C. Olson Pike, jumped into the state of married bliss on March 3. The lady was Miss Florence MacKinnon of Newburyport, Mass., whom we all met at the proms. Ollie has been with Goodyear in Akron, Ohio, since last July. He's been through their training school and is now doing development work on Pliofilm. I'm working for Manhattan Rubber Manufacturing Division in Passaic, N.J., and I like it very much. I am doing development work on rubber belting and mechanical rubber goods." Thanks, Dan. — Don't forget that if any of you are now unofficial correspondents for your group, whatever it is, let us know, and we will give you recognition. — WINTHROP A. JOHNS, *General Secretary*, 114 Beechwood Avenue, Bound Brook, N.J.

NOTICE TO REVIEW READERS

The Review is not published during the months of August, September, and October. This is therefore the last issue of Volume 40, and readers who file their issues have a complete volume if they possess copies for the months beginning with November and ending with July. Volume 41 will begin with the November, 1938, issue, out on October 27.

33 YEARS

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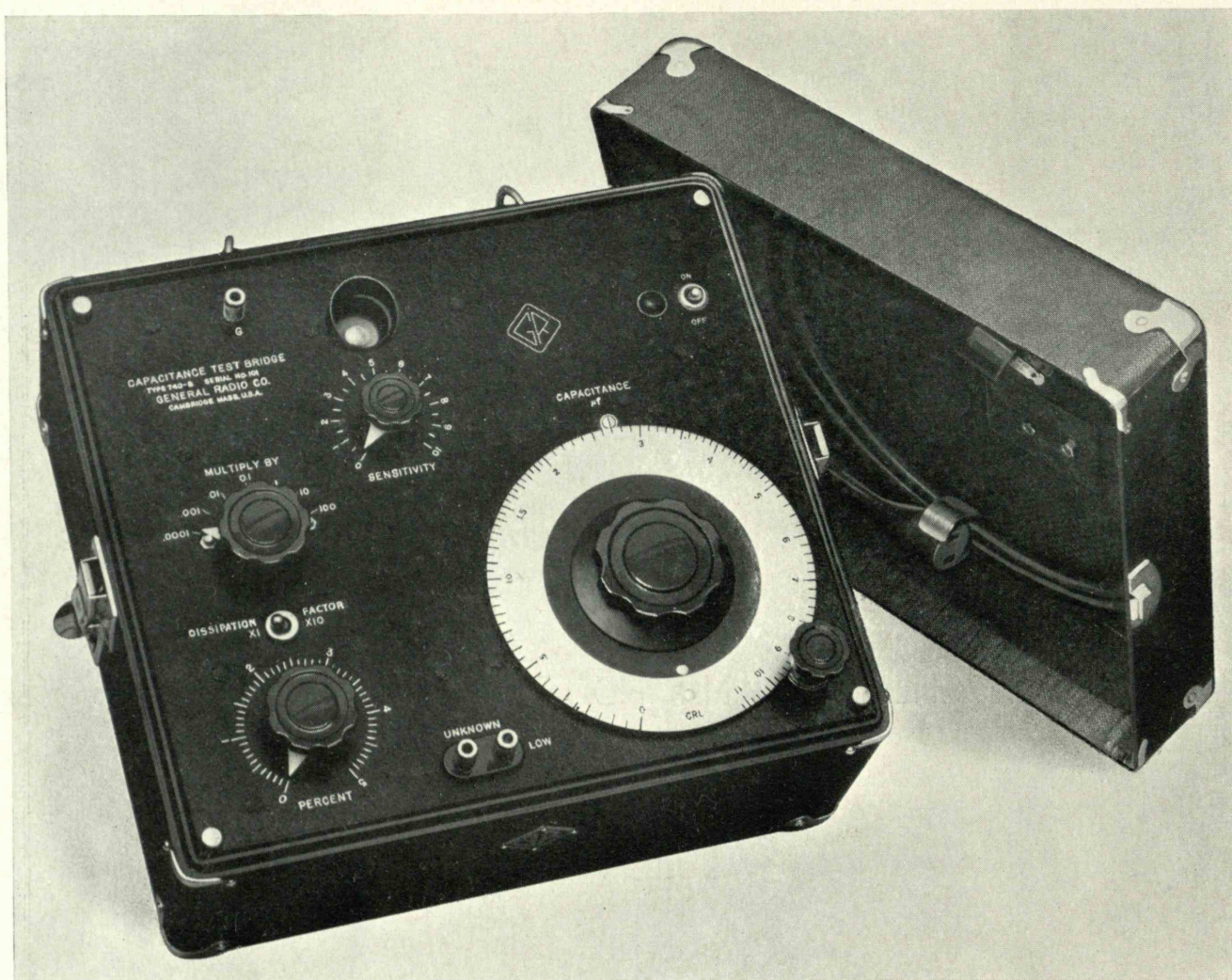
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